DOCUMENT RESUME

ED 032 646 08 EA 002 544

By-Super, Donald E.; And Others

Floundering and Trial after High School. Horace Mann-Lincoln Institute of School Experimentation: Career Pattern Study: Monograph IV.

Columbia Univ., New York, N.Y. Teachers College.

Spons Agency-Office of Education (DHEW), Washington, D.C. Bureau of Research.

Report No-CRP-1393

Bureau No-BR-5-0065; CRP-1393

Pub Date 67

Note-334p.

EDRS Price MF-$1.25 HC-$16.80

Descriptors-Academic Achievement, Career Change, Career Choice, *Career Planning, *Careers, Community Involvement, *High School Graduates, Job Satisfaction, *Junior High School Students, *Longitudinal Studies, Occupational Aspiration, Parental Background, Peer Acceptance, Post Secondary Education, Vocational Adjustment, Vocational Followup, Work Experience

This monograph reports a 10 year followup study of approximately 200 junior high school boys to determine their transition from school to college and to work. The purpose of this monograph is to describe their careers and to analyze the possible determinants of their careers. All living subjects were located and 94 percent were contacted in person with coordinated interviews, questionnaires, and tests to bring the information about their family, educational, military, and work histories up to date. Predictor variables in this study consist of standard measures of intelligence, parental occupational level, school achievement and participation, community participation, peer acceptance, and level of vocational aspiration. In addition, measures were taken to assess readiness for vocational planning. Criterion variables consist of measures of career and of occupational success or satisfaction, including vocational coping behaviors and measures of career development and occupational status up to or at age 25. (MF/Author)

ED0 32646

BR-5-0065
PA-08
OE-BR

Horace Mann-Lincoln Institute of School Experimentation

Career Pattern Study: Monograph IV

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

FLOUNDERING AND TRIAL AFTER HIGH SCHOOL

by

Donald E. Super,
Ruth S. Kowalski and Elizabeth H. Gotkin

With the collaboration of
Martha B. Heyde and Jean Pierre Jordaan

The research reported herein was supported in part by the Cooperative Research Program of the Office of Education, U.S. Department of Health, Education, and Welfare, as Cooperative Research Project No. 1393.

Copyright 1967
by
Teachers College, Columbia University
New York, N.Y.
All rights reserved.

"PERMISSION TO REPRODUCE THIS COPYRIGHTED MATERIAL HAS BEEN GRANTED BY Donald E. Super
Prof. & Dir. Psychol. & Educ.
TO ERIC AND ORGANIZATIONS OPERATING UNDER AGREEMENTS WITH THE U.S. OFFICE OF EDUCATION. FURTHER REPRODUCTION OUTSIDE THE ERIC SYSTEM REQUIRES PERMISSION OF THE COPYRIGHT OWNER."

EA 002 544

CONTENTS

PREFACE Donald E. Super

CHAPTER I THE POST-HIGH-SCHOOL YEARS: DECISION AND ACTION
The alternatives. The possible coping behaviors. Summary: alternatives and coping.

CHAPTER II CAREER DEVELOPMENT AND OCCUPATIONAL SUCCESS
The concepts of occupation and career. Types of criteria. Summary.

CHAPTER III A LONGITUDINAL STUDY OF VOCATIONAL DEVELOPMENT
The Career Pattern Study: 1951-1963. Follow-up methods and results. Status of Career Pattern Study subjects at age 25. Conclusions.

CHAPTER IV POSSIBLE PREDICTORS AND CORRELATES OF YOUNG ADULT VOCATIONAL BEHAVIOR
Vocational maturity in high school. Correlates in junior and senior high school. Correlates of vocational behavior at age 25. Summary.

CHAPTER V THE MEASUREMENT OF EARLY VOCATIONAL BEHAVIOR
Judged career behaviors. Scaled career behaviors. Additional career behaviors and outcomes. Occupational behaviors and outcomes: Measurement. The validity of work histories. Summary.

CHAPTER VI THE INTERRELATIONSHIPS OF VOCATIONAL BEHAVIORS
Judged career behaviors. Scaled career behaviors. Additional career behaviors and outcomes. Occupational behaviors and outcomes. The meaningful criteria. Summary.

CHAPTER VII VOCATIONAL MATURITY AS A PREDICTOR OF EARLY ADULT VOCATIONAL BEHAVIOR
Vocational maturity and scaled career behaviors. Vocational maturity and vocational coping behavior. Vocational maturity and career statistics. Vocational maturity and later occupational level and outlets. Vocational maturity and position and occupational success and satisfaction. Summary: vocational maturity in high school and success in young adulthood.

CHAPTER VIII STANDARD MEASURES OF STATUS AND ACHIEVEMENT AS PREDICTORS OF EARLY ADULT VOCATIONAL BEHAVIOR
Standard variables in school and young adult career behavior. Standard variables in high school and stabilizing versus floundering after high school. Standard school variables and post-high-school employment history. Standard school variables and post-high-school educational attainment. Standard school variables and self-estimated career criteria. Standard school variables and occupational level and outlets. Standard school variables and self-estimated success and satisfaction. Concomitants of young adult vocational development. Summary: standard predictors and concomitants of early adult careers.

CHAPTER IX SUMMARY AND CONCLUSIONS: FLOUNDERING AND STABILIZING AFTER HIGH SCHOOL

Subjects and methods. Vocational development at age 25. The nature of success in young adulthood. A conceptually and empirically adequate definition of success. Adolescent antecedents of young adult vocational behavior. Conclusions.

APPENDIX A THE QUESTIONNAIRE-INTERVIEW BATTERY

APPENDIX B SCORING MANUALS FOR THE CAREER DEVELOPMENT SCALES AND FOR THE EMPLOYMENT HISTORY VARIABLES OF CAREER STATISTICS

REFERENCES

PREFACE

In a contribution to a recent symposium on longitudinal research, a speaker concluded with the following statement: "Research, in other words, always takes longer". The remark is perhaps not profound, but it expresses a feeling which is echoed by most researchers, and particularly by those who, brash enough to embark upon long-term studies, in due course find themselves coping not only with masses of raw data, but, more important, with emerging concepts and improvements of method which call for the refinement of constructs and for still more data analyses.

The first monograph in this series (Super et al., 1957), listed the reports which were anticipated as the twenty-year project was launched, together with the dates of the follow-ups on which they were to be based. The second monograph, reporting the analysis of data from the base year (1951-52) was published eight years after data collection and three years after the first monograph (Super and Overstreet, 1960). Monograph III (Heyde and Jordaan, in process) reports the follow-up, that of 1955, when the boys were high school seniors. It deals with vocational development during the high-school years, and is being written as this monograph goes to press. It has involved not only analyzing data collected in the twelfth grade, but also reworking the data from the ninth grade to make them comparable.

This, the fourth monograph in the Career Pattern Study series, treats the years of transition from school to college and to work; it is the ten-year follow-up study. The subjects were then 25 years old, in 1962 and 1963. A fifth monograph in the same series reports a replication with variations, independently made by Warren Gribbons and Paul Lohnes (in press); it covers the years from junior high school until one year after graduation.

The purpose of the study reported in the present monograph is to describe the careers of approximately 200 typical junior-high-school boys in a typical small city of the Eastern United States, and to analyze the possible determinants of their careers. The focus is not on occupational choice or on occupational ability patterns, which would require a much larger sample in order to deal adequately with any one occupation, but on careers. These, surprisingly, have been typically neglected by the research literature of education, of psychology, and even of sociology.

Focusing on careers, this study has sought to deal not only with the social, psychological, and educational characteristics which have traditionally been the subject of occupational studies, but also with a number of novel measures designed to assess hitherto neglected, but theoretically important, traits subsumed under the heading of vocational maturity. In this it carries forward the junior-high-school study reported in the second Career Pattern Study monograph and the senior-high-school study which is the subject of the third monograph.

The important contributions made to earlier stages of this longitudinal study by a succession of able and dedicated research assistants have been acknowledged in each monograph. As the years go by and the data accumulate the importance of the contributions of these earlier researchers, now become colleagues in name as well as in fact, becomes greater and clearer. The names of Harry Beilin, John O. Crites, Junius A. Davis, William Dubin, Martin Hamburger, Martha B. Heyde, Raymond C. Hummel, Charles N. Morris, Helen P. Moser, Phoebe L. Overstreet, Albert S. Thompson, Charles F. Warnath, and others are not visible in this monograph, but their imprint is none the less clearly in it. The project's, not to mention the senior author's, indebtedness to them is great and continuing.

The responsibility for preparing instruments for the ten-year follow-up, when the subjects were about 25 years old, fell largely to Elizabeth Hoppin

Gotkin and to Winthrop R. Adkins, to whom the project is indebted for the particularly creative development of the integrated Questionnaire Interview Battery (QIB). They were assisted in this work by other project staff members and seminar participants. The actual *collection of follow-up data* was managed by Ralph LoCascio, in a masterly sequence of tracing, alerting, scheduling, and seeing nearly 100 percent of the subjects. Follow-up testing and interviewing was carried out by a combination of current and alumni research assistants and associates, including Drs. Davis, Hamburger, and Morris, as well as the present writer: Professors Jean Pierre Jordaan and Albert S. Thompson, and Winthrop R. Adkins, Stephen T. Bailey, William C. Bingham, William Dubin, H. Jon Geis, and James Mowry, assisted in interviewing, and James L. Bothwell, Louise Chatel Long, Elizabeth H. Gotkin, Ruth S. Kowalski, Gene A. Laughorne, Marion Leibowitz, Evelyn Marr, Doris Moriarity, Morton Pardes, Jack Steingart and Joan Seldin assisted in testing.

Predictor variables, particularly the revision of the conceptual as well as operational vocational maturity measures, have been the concern of Martha B. Heyde and Jean Pierre Jordaan, colleagues of many years to whom the senior author owes a great debt for their patient and persistent work, with the collaboration of Walter Reichman and, at various points, the assistance of Ronald Aarons, Stephen T. Bailey, James L. Bothwell, Sylvia Clack, Philip Erdberg, Preston Smith, and Robert Steer. This study would not have been possible without their work.

Data analysis has been largely the work of the three authors of this monograph, helped by Alan P. Bell, Shirley Levine Bell, Bertram Beerbohm, Marion Liebowitz, Louise Chatel Long, Lou M. Papalexiou, Morton Pardes, Guy Pilato, Lawrence Shadur, Warren F. Shaffer, and Charles M. Super.

The development of methods of scoring career criteria has been the responsibility of Elizabeth H. Gotkin. Occupational criteria were developed largely by Louise Chatel Long, Ralph LoCascio, and Evelyn Marr. To Ruth Seltzer Kowalski has fallen the role of factotum, first as project secretary and then as research assistant who has, like Drs. Heyde and LoCascio, always known "who, what, when, where, and how", rendering invaluable help in organizing manuals of procedures and in working up raw data, preparing rosters of scores for data processing, organizing tables, and, with Elizabeth Gotkin and the present writer, writing appropriate chapters of the monograph. The work of these staff members has been greatly facilitated by project secretaries who have provided needed continuity; Lou Morecroft Papalexiou has been the specialist in raw data collection, storage, and retrieval, and in the typing of manuscript, during the work of this study. Charles Thompson, assistant secretary for two years, helped in the preparation of data rosters. Sylvia Clack and Robert Steer have verified statistical data and read proof while handling their own research assignments.

The authors are very much indebted to several colleagues at Teachers College who have frequently served as consultants in statistical analysis and data processing: Professors Richard Lindeman, Rosedith Sitgreaves, Robert L. Thorndike, and Belvin Williams have given generously of their time and knowledge. Programmers in the Teachers College Computer Center, in particular Mrs. Bea Mittelman, Mrs. Shirley Willig, and Mrs. Nora Kasten, have also been of material help in planning and execution of data processing. Professors Anne Roe and David Tiedeman of Harvard University have encouraged us with frequent exchanges of ideas, helpful criticism, and informed interest.

Financial support for this project has come primarily from the Horace Mann-Lincoln Institute of School Experimentation, the endowed research facility of Teachers College, Columbia University. The follow-up study itself was made possible by substantial additional support, over a three-year period by the Cooperative Research Program of the U.S. Office of Education

(Project No. 1393). We are particularly indebted to Professor Arthur W. Foshay and most recently to Professor Francis A.J. Ianni, of the Institute, and to the staff of the Bureau of Research of the U.S. Office of Education, for their understanding and support as the work of data analysis stretched out over a period of time substantially longer than originally anticipated.

We are indebted to the boys of the classes of 1955 and 1956 in Middletown High School, Middletown, New York, who have let us pursue them to Frankfurt and Izmir, to Tampa and to Tacoma, who have come to New York or welcomed us in Middletown, for their cheerful and patient cooperation in supplying us with information on the unfolding of their careers.

Finally, the senior author owes a very special debt to two graduate students, his co-authors, Elizabeth Hoppin Gotkin and Ruth Seltzer Kowalski. Their insightful collaboration in the analysis of data, the preparation of tables, the writing of first drafts of some chapters, and the criticism of chapters which he himself wrote, has simplified, expedited, and made pleasurable a task which merited, but could not have, the exclusive attention of a senior career researcher.

Montclair, New Jersey
August, 1967

Donald E. Super

CHAPTER I
THE POST-HIGH-SCHOOL YEARS: DECISION AND ACTION

The years which follow leaving high school, whether by dropping out with one-fourth or graduating with three-fourths of one's fellows, are years of decision and action. The decisions may be made by default, the action may consist of inaction, but even in defaulting and failing to act important career choices are made.

Despite this fact there have so far been relatively few attempts to study, in any depth, the vocational experiences of young people during the years immediately following school. Follow-up studies, the importance of which has long been recognized in education and in vocational guidance, have tended to describe selected cases or to ascertain the percentages of students with certain educational backgrounds and personal characteristics, such as intelligence and social status, going into various types of higher education and employment a year or so after high school or college. Other more searching investigations, such as Rothney's (1958), have been designed to evaluate the results of counseling. It is only recently, as in the Career Pattern Study (Super *et al.*, 1957), in Gribbons and Lohnes' (in press) study, and in Project Talent (Flanagan, 1960), that efforts have been made to relate more varied and complete data concerning high school students to detailed studies of their careers for several years after leaving high school and college.

The concepts of *floundering and trial* have, however, been familiar in the literature for many years, and have consistently been applied to the post-high-school years. In a study of the careers of adult men in San José, California, Davidson and Anderson (1937) used the term floundering to describe the apparently random job changes of many of their subjects, particularly those of the first few years of work. Miller and Form (1951) collected work histories from a sample of adult men in Ohio and identified a sequence of work periods which included one which they called that of trial, covering the years after high school and prior to settling down in a regular adult occupation. The trial process which they described, however, involved a great deal of error, and appeared similar to what Davidson and Anderson called floundering. Buehler (1933) had also made use of these concepts in her pioneer work, identifying in the case histories which she studied what she called an exploratory stage, beginning in adolescence and continuing into the mid-twenties until establishment. Adopted for use in vocational psychology and counseling (Super, 1942, 1957), these concepts of floundering and trial have been helpful in describing vocational development, especially when a distinction is made between random floundering and somewhat systematic trial.

This distinction, and others pertaining to vocational behaviors and vocational life stages, have generally been made by means of unquantified observations or judgements of case studies, observations of uncertain reliability and insufficiently described to permit replication. The theoretical utility generally ascribed to them (e.g., Super _et al_., 1957) therefore remains to be verified.

This chapter, and that which follows, describe the choices and behaviors with which we must be concerned in a study of the post-high-school years, and establish definitions which make possible the more objective judgement or measurement of the attitudes and behaviors in question. Subsequent chapters report the results of the use of these measures in studying and illuminating early career behavior.

The Alternatives

Certain important alternatives are faced during the high-school years, and even during the years prior to high school; the choice points built into secondary schooling have often been described, and awareness of the implicit choices in elementary schooling has increased in recent years. The grade school pupil rarely if ever consciously decides to be a scholar or a non-scholar, but his experiences of success or failure in the verbal work of the school, and the attitudes of his parents and peers toward his endeavors and his achievements, do contribute to his concept of himself as a good or poor student, and hence as one who may or may not consider various higher level occupations. The children of professors often take it for granted that they too will work for higher degrees, the children of farmers often assume that they too will be farmers - such is the force not just of socioeconomic status, but also of parental attitudes. But even these attitudes are to some extend modified by experiences of success and failure with the tasks of the school, and by the evaluations of fellow pupils and teachers.

It is not our task, in this study, to deal with these early school experiences. Neither is it relevant to this report to deal with the choice points and choices of the high-school years: Heyde and Jordaan (in preparation) deal with vocational development in the high school years in the third of the Career Pattern Study monographs. But it may be well to note, in passing, that in the eighth and ninth grades basic decisions are made which have obvious curricular implications, and vocational implications which are sometimes clear and in other instances only implicit. These choices concern not only college versus non-college preparation, but within the college curriculum possible emphases on the sciences, on mathematics, on languages and literature, or on social studies, and within the non-college curricula emphases on business, agriculture, the skilled trades, or on no special occupational field and hence on semi-skilled or unskilled work.

Educational Alternatives

The first school-leaving alternative faced by the high-school student is that of graduating or dropping out before graduation. Even some youths who do not drop out as soon as the law permits later decide not to stay in school until graduation. Other educational alternatives continue to exist, some of them generally very obvious to the person in question, some unclear at first but clearer later on, and others never really clear even though more or less available.

For the dropout the first educational choice is whether or not to remain a dropout. Return to school may be repugnant, an admission of error and a return to a situation from which escape had been sought, but encountering the realities of the labor market and of the frequent requirement of high-school graduation may make return and graduation the least disagreeable of available alternatives. Two of the surviving 140 Middletown ninth graders of 1951-52, it will be seen later, dropped out of high school but returned to graduate a year or two after their classmates, and 15 of the 37 other dropouts obtained high-school equivalency diplomas by examination by the time they were 25 years old. Some of these boys went on to junior college, as evening students, with a new awareness of the significance of education. It is not true, as sometimes claimed, that "once a dropout, always a dropout!".

The graduating student faces the educational alternatives of college, junior college, technical institute, trade school, or business school, either on a full-time basis or on a part-time basis while working. In many cases these decisions are made in high school with the aid of the school staff, but in some they are not made until after graduation. This delay is particularly common among those who go on with the less academic types of education or training. Not only is admission generally less selective, requiring a lesser commitment, but it seems likely that many of those who do not go on to professional or technical training are themselves not committed vocationally, whether for lack of maturity or for lack of differentiating aptitudes and interests. The incidence of these characteristics is, in fact, an important research question.

If he chooses one of the educational (rather than employment or military) options, the young person faces still further educational alternatives. He may continue in his program, transfer to another, or drop out altogether. He may choose one or another of several major fields or specialities open to him. On completing one stage, such as junior college or the bachelor's degree, he may discontinue formal education or proceed with another, higher, stage. This next stage may be in the same occupational field or in a different field, it may be as remote from an occupation as his earlier program, or it may be more clearly occupational in its content and objectives.

Employment Alternatives

The first employment alternatives faced are typically those of methods of seeking a job. These have been found, in many studies (Super, 1957), to vary considerably with the educational and socioeconomic level of the job seeked: factory operatives tend to seek and find their jobs "at the gate", applying directly to the employer at his plant, whereas engineering graduates generally see company recruiters in appointments made through the college placement office. Most jobs are actually obtained through personal contacts of some type, often those which merely inform the job seeker of the fact that there is an opening at a certain place and which lead him to apply there. Consciously or otherwise, the entrant into the labor market must choose a job-seeking strategy: what means to use (contacts, placement service, want ad), how to present himself (by letter, in person without appointment, with appointment), and what kind of presentation to make (to inquire about openings, to apply for any job, to express an interest in a certain type of work).

A second set of alternatives comprises the types of enterprises in which employment may be sought: the large corporation, the small company, the family enterprise, a government agency, an institution, self-employed. The stereotypes of these employment settings lead to preferences for one or the other kind of employment, and studies of their nature as organizations reveal some factual basis for these stereotypes. Even within categories of this type there are subgroups which differ in important ways: among large corporations, insurance companies are more conservative and change less rapidly than electronics manufacturers, with consequent implications for security and advancement possibilities.

Still another set of alternatives confronting the new entrant into the labor market is that involving training as contrasted with regular employment. Various forms of apprenticeship and traineeship offer somewhat less pay in the beginning but more opportunity to acquire special knowledge and skill which lead to more responsible positions and better pay. On the other hand, the same person may also qualify for regular jobs, in the same or in a different company, at higher beginning pay but with no provision for special training and with less possibility of advancement.

After the first position has been obtained other choices continue to exist, with varying degrees of visibility and pressure. One can stay (if successful) or quit, one can continue working but look for another position or one can refrain from job-seeking, one can enter training for advancement or transfer or one can seek no further education on either part-time or full-time basis. These post-employment alternatives may not loom very large to the newly employed youth, but as time passes they are likely to appear of greater importance to him. The completion of high-school diploma requirements by dropouts, the data frequently reported on the ages of enrollees in night-school courses, and other such evidence suggest an increasing concern with alternatives of both educational and employment types during the middle twenties.

The Military Alternatives

In the case of young men, and even of young women, there is a third type of alternative, that of military service. For the boys it is of course more than an alternative, it is for many a requirement. But as it involves a substantial degree of uncertainty it functions as an alternative: the young man may enlist, he may join the reserves, he may seek officer training while a student, or he may be a conscientious objector, or he may proceed with other plans and let the military draft do what it will. In the last case he still faces alternatives which include seeking deferment as a student (with either his studies or deferment as his real objective), seeking a stop-gap job on the grounds that until his draft status is cleared up he can do no more than mark time, and seeking regular employment with a career objective in mind.

Opting military service, the young man again faces alternatives. Military experience may be treated as an interruption in a career, to be made as brief as possible and to be done well or as painlessly as possible. Or it may be treated as an opportunity for enlarging horizons and for training or experience which will further a career. The vocational relevance of military training may be as clear and direct as learning to operate earthmoving equipment for the youth interested in construction work, or as unclear and indirect as a year in the Middle East to a social studies teacher, but in either case it is as important, or as unimportant, as the young man himself chooses to make it.

Finally, there is the alternative of making a career of the military or of returning to civilian life after military service, the latter alternative itself being a double alternative since the period of service may be stopped when the requirement is met or it may be extended by re-enlistment or by an extended tour of duty. Prolonging the period of military service may be a way of obtaining additional useful experience, of accumulating capital for later business or professional use when stationed where spending is unnecessary and even difficult, or of avoiding facing the problems of re-entry into the civilian labor market. In any case, there are more decisions to be made, there is more call for action.

The Possible Coping Behaviors

According to the theoretical formulations which provide the framework for this study (Super *et al.*, 1957), the years after leaving high school are years of exploratory activity leading to the eventual establishment of an adult career pattern. This last may be stable or unstable: a career is not synonymous with a "life work", with an occupation, but with a life which includes work and which may comprise several different occupations. And, more pertinent to this report, the exploratory activity of the late teens and early twenties may be random or it may have some direction.

The need for criteria of vocational success by which to validate tests, evaluate education, and ascertain the effects of various life statuses and experiences, makes the analysis of the vocational coping behaviors of the years following high school particularly important. By vocational coping behaviors are meant the actions taken by people in dealing with the developmental tasks which have direct vocational implications or which are clearly vocational in nature. How young people deal with the educational, vocational, military (and at least in the case of women, marital) alternatives faced during their early careers may be more important than their success or satisfaction in the activity actually engaged in. Most studies of vocational success have used the latter, static, type of criterion (Super, 1961, 1963), but it seems desirable, in studying vocational development, to make use also of developmental criteria. These, it is suggested, can be based on the analysis of vocational coping behaviors.

A first formulation of these was made as the Career Pattern Study embarked upon the task of collecting the post-college follow-up data concerning its subjects (Super, 1963), and the first systematic empirical work on the coping behaviors is described in a doctoral dissertation by Gotkin (in process) and in this report.

It was hypothesized that there are five types of vocational coping behavior during the exploratory life stage. These are 1) floundering, 2) trial, 3) instrumentation, 4) establishment, and 5) stagnation. Any or all of these might be observed in a given subject in a short span of time, but any one action, such as a change of positions, should be classifiable under one of these headings. The first and last are negative, essentially floundering; the middle three are positive, and involve attempts at stabilizing in a vocation. A count of the number of such behaviors, or a rating of the importance of each such act, should yield a measure of the coping behavior and hence of the career development of the person being studied. These behaviors may be judged by external or by internal standards, and on evidence of a socio-economic or of a psychological type.

Attempts to assess floundering or any other coping behavior may vary from relying on global judgement in the reading of work histories and related case material, to the use of more specific and strictly objective indices derived from the frequency with which certain events are revealed by the history. The conceptual adequacy of the former may be more satisfactory, because of the complex nature of vocational behavior, but the psychometric or econometric neatness of the latter type of index also has obvious advantages.

Judging the nature of a move by the characteristics of the two positions involves no assumptions about the subject's motivation, it merely describes the move as one which reveals a certain amount of patterning or direction. Judging the move by the amount of agreement between subject characteristics and job requirements also requires no assumptions about motivation, although one is tempted to make them.

Floundering

Floundering is defined as movement to a position which is not logical as a next step from the position being vacat~~ion~~ed, for which the subject lacks required aptitudes, interests, and preparation, or for which he is no better suited than for the position being vacated. A variety of personal and job characteistics are relevant, for whether or not one position is a logical next step depends partly upon the job structure in the organization and in society, partly upon job requirements and personal qualifications, and partly upon society's expectations of persons with the characteristics of the individual in question.

The term "movement" also needs defining in this context. It may be defined as actual change of position: certainly it is then clearly observable as movement, even though determining the logic or appropriateness of the movement may require additional evidence and may at times be difficult. Or, any action designed to produce movement might be included in the definition: thus applying for a job, or even reading the want ads, could be defined as a coping behavior which is one component of movement. Reading ads for inappropriate positions, with serious intent, would then be definable as floundering. But the behavior in question is much more difficult to observe, even though self-report, than is actual change of positions.

Trial

Trial is conceived of as movement from one related job to another, the next job having some characteristics of the preceding job but lacking others. The process appears as one of eliminating the inappropriate and retaining or gaining the appropriate, and may be described as a zeroing in on a field of activity. What is appropriate may be defined phenomenologically, in the subject's terms, or it may be judged by external standards. The standards, in either case, may be psychological, social, or economic. Trial should, in due course, lead to establishment; when it is too prolonged, or too frequent, it takes on the characteristics of stagnation or of floundering. It differs from instrumentation and establishment in that it involves, as least implicitly, a questioning of the choice.

Instrumentation

Instrumental behavior, in coping with vocational development tasks, is action which enables, or is designed to enable, the subject to prepare for or enter a regular adult occupation which is appropriate for him. It differs from floundering and stagnation in that it is goal-directed, from trial in that it implies no questioning of the goal. Appropriateness, in this as in the other types of coping behavior, may be judged subjectively or objectively, globally or atomistically.

It is the difficulty of fitting this type of behavior, and at least one of those still to be described, into one continuum which makes it desirable to deal with a typology or with a multidimensional model of coping behaviors.

Establishment

Establishment behavior is that which achieves stability in an occupation in which the subject can function as a normal adult or, in the case of some handicapped persons, in which one can come as close as possible to normal adult functioning. Establishment involves making a place for oneself in an occupation for which one has the required abilities and interests, when psychologically defined, and in which one can support oneself and dependents in ways deemed appropriate when socially defined. The standards used may, as in the assessment of all coping behaviors, be internal and subjective or external and objective; they may be global or atomistic.

It is essential to differentiate establishment behavior from trial, by the lack of doubt concerning goals in the former, and from stagnation, by the inappropriateness of the latter.

Stagnation

Stagnation involves staying in a position or in an occupation longer than is appropriate. It is not just a matter of remaining static, for establishment can, after a point, become static, in which case it is the maintenance behavior of a later life stage (Super, 1957). In stagnating, the subject stays in an entry job after he should have moved on to a higher level at which he might achieve some security, earn enough to support himself and dependents, use his abilities and express his interests, etc. Or he remains in a blind alley job despite the impossibility of self-support or self-fulfillment in it, hurting his prospects of getting started in a job with a future. Stagnating therefore means deteriorating.

This type of coping behavior differs from the others in that it does not involve movement. Even establishment, which may take place without changing jobs, or instrumentation, into which stagnating might change with the emergence of a goal, can be revealed in changing from one position to another, but stagnation becomes clear only after the passage of time in a position. In the assessment of coping behavior as revealed in movement from one position to another this type would therefore be missed. It could, however, be observed in the analysis of attitudes towards positions, and it could be identified in evaluating employment records supplemented by case history materials.

Summary: Alternatives and Coping

Vocational development may be described in terms of the developmental tasks with which society confronts people as they mature, in terms of the alternatives between which they must choose at various life stages, in terms of problems and their solution, or in terms of decision making as choice points are reached. These different ways of describing the same phenomena all recognize two important elements: a situation and a way of dealing with it. They have been described here in terms of alternatives faced and of behavior in coping with the alternatives. The alternatives are positions - educational, vocational, and military - which one may, or must, occupy. The behaviors are floundering, trial, instrumentation, establishment, and stagnation. The nature of the behavior can, it has been suggested, be revealed by the relationships of positions sequentially occupied and by the relationship of the characteristics of the subject to the requirements and characteristics of the positions occupied.

Such an analysis of alternatives and of coping behavior appears likely to yield criteria of vocational success which are particularly appropriate in the study of vocational development, or in the evaluation of success at a life stage characterized more by change than by stability. The next chapter develops further the concepts of career or vocational development and of occupational success, and examines in more detail their possible indices.

CHAPTER II
CAREER DEVELOPMENT AND OCCUPATIONAL SUCCESS

In Chapter I the need to differentiate between occupational and career success was referred to, and use was made of the distinction in developing the concepts of alternatives faced and of coping behavior. As the distinction is still a somewhat novel one it will be helpful to a full understanding of the rest of this report to consider it at somewhat greater length. This is done in the first part of this chapter; the second section contains an elaboration of the several pertinent types of criteria; finally, criteria selected for use in this study are listed.

The Concepts of Occupation and Career

An occupation, according to standard works on occupational analysis and description (Shartle, 1946, 1st ed.), is a group of similar jobs in different organizations; a job, in turn, is a group of similar positions in one organization; and a position is a group of duties and tasks performed by one person. This is a rather more precise and limiting definition than those given in standard dictionaries, and even than those usually used in economics, which tends to emphasize the self-support or productive features, or in sociology, which tends to stress roles and functions without differentiating between occupations and positions.

A career, on the other hand, is best defined as the sequence of positions occupied by a person (Super, 1963). These positions may all be in the same occupation, in the same occupational family, or in quite unrelated occupations; they may even be non-occupational, and include positions (using this word now in the sociological sense of place occupied in society) such as those of student, housewife, hospital patient, and annuitant. The positions of student and annuitant may be considered parts of the vocational career, as the former involves preparation for, and the latter withdrawal from, an occupation. Perhaps even the position of housewife will in due course come to be considered part of the occupational career, when ways of fitting homemaking into the sequences of women's careers receive more attention. Gainful employment need not be the criterion of occupation, although certainly wages, salaries, or fees are essential aspects of gainful employment. What one does, especially in a potentially automated world, need not necessarily result in personal gain.

Careers have generally, and unfortunately for psychology, sociology, and education, been defined in a more limited way. Webster, for example, defines career as "a course of sequential progress in the life of a person, nation, etc., a field for, or pursuit of, consecutive progressive achievement...". Accordingly, a career cannot exist without continuity and advancement. But, as Miller and Form (1951) have shown, many careers are discontinuous, and some involve decline rather than advancement. The concept of career as a ladder up which one climbs is essentially a middle class notion (Super, 1957). It disregards the evidence on the career patterns of a substantial number of persons, most of whose occupational movement is lateral rather than vertical, as they shift from one semi-skilled blue or white collar position or occupation to another, or move, with shifting fortunes, from one low skill level to another.

The Consequent Definitions of Success

When the focus is on occupations, whether as single entities or as steps on a career ladder, success tends to be defined in occupational terms, in terms of status. These criteria have been reviewed a number of times (Thorndike, 1949; Davies, 1950; Brogden and Taylor, 1950; Stott, 1950; Super, 1951; Tiffin, 1958; Thorndike and Hagen, 1959; Ghiselli and Haire, 1960); they need only brief mention here.

Success in Occupational Endeavor. Occupational success may be judged by performance criteria, behavioral indices in which the judgement either of the subject or of others plays only an indirect role, or by ratings which record the judgements of the worker, his supervisors, his peers, or even his subordinates.

Performance criteria range from occupational level scales, on which the occupation of the subject is placed in order to evaluate his attainment, through production indices such as units of output or sales volume, earnings, and advancement, to stability of employment. Some of these measures are appropriate only when people from a variety of occupations are being studied: occupational level is one of these. Others are usable only when all subjects are in the same occupation, or even in the same job (doing similar work for the same employer): output units or sales volume are good illustrations. Even when the jobs are similar, corrections are sometimes needed, as when the number of retail outlets which a salesman can cover in a day varies significantly from one sparsely settled region to another thickly populated territory.

Some criteria are appropriate for the study of certain types of predictor variables but not for others. Occupational level, uncorrected in any way, may be a good criterion against which to evaluate the predictive power of parental socioeconomic level. But if one is interested in the role of personality, occupational field (or even specialty within an occupation), is a more theoretically appropriate criterion.

Although they appear very objective, performance criteria are not as free from subjectivity and from judgement as they are often thought to be. Output has been shown to be in part, and sometimes even largely, determined by what workers consider a day's production. Salaries are in part a function of the employer's rating of the employee, and so are advancement and stability. Stability is also in part a reflection of the worker's self-estimate, for he remains on a job in which he believes he is doing well, but is likely to leave a job in which he does not consider himself a success.

And it is not just employers and workers whose judgements affect supposedly objective, behavioral, criterion measures: the researcher also introduces a note of subjectivity. For example, measures of stability of employment, such as those used by the National Institute for Industrial Psychology's landmark studies of the 1920's and 1930's (Earle, 1933), make the assumption that stability of employment is evidence of success. In one sense it is: the worker has satisfied the employer enough to be retained. But retention, like employment, depends in part on the availability of replacements or alternates, and in times of manpower shortage these may not be available. Similarly, from the worker's point of view, keeping the job rather than leaving depends upon what his alternatives are, which means that he may stay on a job, in which he does not consider himself successful, for lack of something better to which to change. In another classical study, Paterson and Darley (1936) found that employees who were released early in an economic depression had less ability than those who were retained, but that those who were released late in the depression did not differ in ability from those who were still employed. The researcher, in using a stability-change criterion uncorrected for such factors, makes assumptions which may not be warranted.

Ratings have long been known to vary greatly in their value, depending upon how well the rater knows the subject, his detachment, and the care with which he does the rating. When raters have been trained and the reliability of the ratings has been established such criteria merit use; even when this is not the case, there is sometimes the pragmatic justification that the judgements recorded are those on which employers act. This may or may not be true, for supervisors may give satisfactory ratings for the sake of harmony and good relationships, but make finer distinctions when promotion or discharge are being considered. Peer ratings may reflect liking more than performance evaluation, although devices have been developed which maximize the latter (for example, the "guess who" technique requesting nominations for both the "best liked" and for the "best producer"). Self-estimates are subject to all the biases of social desirability, which again may be somewhat minimized by methods of item-writing and by establishing rapport, and they do have the logical appeal of tapping the assessments which direct the subject's actions.

Whether the subjects of a study are employed in one job, one occupation, or many occupations has a bearing on the use of ratings just as it does on the selection of performance criteria. Supervisors' ratings of success, for example, have different meanings under these various conditions. When all subjects are in the same job, the comparison is of persons doing the same work, under similar conditions; worker differences are thus given the maximum opportunity to appear, although conditions may actually vary from supervisor to supervisor or from work-station to work-station.

When the subjects are in the same occupation some of the same advantages are retained, but some are lost: company practices also vary, perhaps more importantly than individual workers within a company. For example, most studies of variables associated with success in teaching report no relationship between intelligence and teaching success as rated by supervisors. But it is quite possible that this is because of the limited range of intelligence from which a given school system selects; the school systems which provide the most desirable employment conditions may attract and hold the most intelligent, best prepared, most effective, teachers, while the least attractive school systems may employ the least able. Each school's raters would tend to rate on the basis of their local experience. The mean ratings, and their standard deviations, would therefore be rather similar; this, despite the considerable variation in intelligence over all schools, would produce near-zero correlations. On the other hand, a study of the relationship between intelligence and success in teaching, using another criterion (e.g., desirability of the school system in which employed five years after entering teaching) might yield a substantial correlation.

When the subjects are employed in different occupations additional variables are brought into play. Success may be more easily attained in some occupations than in others, even though they require the same amounts of education or training, and this may be a function of the nature of the work, of employer expectations, or a combination of such factors. Being "very successful" in an occupation requiring a great deal of education may not mean the same thing as being "very successful" in a low-level occupation. It could be argued, however, that degrees of success in such diverse occupations can be legitimately compared, if the researcher's question has to do with degree of success in that which is undertaken. The question can of course be further refined by holding intelligence or some other variable constant, if the theoretical framework being used requires it.

As in the case of performance criteria, ratings of a given type may be theoretically appropriate for the study of some predictor variables and not for others. Employer, peer, or spouse ratings provide criteria of the extent to which a subject is meeting social expectations, although even then the researcher must be clear as to which segments of society interest him; self-ratings appear more appropriate if personal aspirations are the object of inquiry.

Satisfaction in Work. Occupational success, in the broadest sense of the term, is not just a matter of doing well, whatever the criterion may be. It is also a matter of being satisfied with what one is doing, with the work activity and with the circumstances or situation in which it is done. Job satisfaction and morale have been the subject of study by vocational psychologists for many years; Herzberg, et al (1959) and Vroom (1964) have done significant recent work on the subject.

Performance criteria have been tried, although satisfaction is an attitude, a feeling of the subject in question. The attitude can be inferred from behavior or reported directly by the subject. Some researchers have preferred the dangers of inference, that is, of their own judgement to those of self-report with its possibility of face-saving. Absenteeism, spoilage, turnover, and other such behavioral measures have been tried, and have the appeal of apparent objectivity. In one sense they are objective: absence is a matter of record, reliably observed and reported. But in a very important sense they are not: absence may be the result of externally induced illness, of the mores, of competing pressures; spoilage may be a matter of skill or equipment, and turnover may depend on the availability of other opportunities.

Ratings have the logical appeal of a direct report by the subject of attitudes and feelings which are frequently discussed, of which he is more aware than are others, and which he may be more free to reveal in verbal rather than in other forms of behavior. Social desirability, fear of the consequences if he makes negative statements about his work, the desire to please by reporting what others are believed to want, may all affect self-reports of satisfaction. These may be minimized by the use of rapport-establishing techniques. Depending on these last, most job satisfaction studies have relied on self-estimates.

Many of the considerations raised earlier concerning the effects of studying a job, an occupation, or a number of occupations also bear on the study of satisfaction. Conditions of work may vary so from one setting to another, and from one occupation to another, that comparisons are more complex than they may at first seem: it may be the situation, the occupation, or the persons in the occupation which vary.

The theoretical appropriateness of the various criteria also needs the usual consideration. Thus Strong (1943, 1955) used stability in an occupation as a criterion of satisfaction, with at least one compelling argument in its support: he was interested in whether or not interests would predict [illegible]at a person would do vocationally. Nevertheless Schwebel (1951) demonstrated, in a study of pharmacists, that this criterion was improved by using self-ratings of occupational satisfaction to identify men who were glad they were pursuing their actual occupation.

Occupational Adjustment. A final type of success criterion, in the broad sense of this term, is the expert judgement of occupational adjustment. This may be based on a case study, the data of which may come from questionnaires, interviews, aptitude tests, interest inventories, personality tests, or some combination of these. It may take the form of a global judgement, in which the expert writes a sketch of the type of adjustment made by the subject, or rates him on a global rating scale. It may be a more atomistic type of measure, in which ratings are made on specific traits or characteristics on the basis of specified types of information in the case history. Or it may be that the expert's judgement plays a part only in designing the research and specifying the occupational adjustment criterion, for example, agreement between the subject's intellectual level and that typical of people in the occupation which he pursues.

Again, whether one is studying a job, an occupation, or a number of occupations, and the theoretical relevance of the predictor and the criterion, are considerations. So are the questions of reliability of the judges and of measures such as discrepancy (agreement) scores.

The Distinction between Position, Job, and Occupation. Attention has already been called to the importance of the distinctions between positions, jobs, and occupations, and the last two distinctions have been explored with relevance to studies of success and satisfaction. That between position and job still deserves mention. It is conceivable that a person might like his occupation, but not the jobs in which people trained for that occupation are employed in a specific company. Similarly, one might like the job in that company, but not the specific position in which one might be hired by that company. In the former instance it may be the company's definition of the functions of persons in that occupation, in the latter it might be the supervisor's definition of his subordinate's role that displeases. Thus, for example, there are agencies in which vocational counselors perform functions which are sometimes restricted to psychologists or to social workers, and others in which they must be careful not to infringe upon professional prerogatives. There are, similarly, agencies in which such differences exist between departments or wards, ward physicians, for example, varying greatly in their professional expectations and in their concern for protocol.

This distinction between position, job, and occupation is not an easy one to get persons who are not students of work to make, without considerable verbal explanation. This is true also when the term career, with its additional meanings, is introduced. But for an adequate understanding of vocational development, and for good criterion construction in studying occupational and career success, these distinctions appear to be vital.

Career Success. Given the important differences between occupations and careers, when scientifically defined, one would expect to find important differences in the criteria used in judging success or satisfaction of these two types. The distinction being still rather new in vocational psychology, career criteria have not been deliberately developed and tried out. However, it is only if eventual establishment in a regular adult occupation is assumed to be the modal criterion behavior that some occupational success criteria may be used as career criteria: thus if a person is successful in the occupation which he will pursue for the rest of his working life, one may consider him successful in the handling of his career. But if one notes the degree of occupational mobility which characterizes large numbers of persons in adulthood, the concept of "regular adult occupation" takes its place among the list of seemingly convenient but misleading fictions.

What is more, in studying the validity of tests and in evaluating programs of education one cannot always wait until subjects reach middle age to collect criterion data. Criteria which become available a few years after school leaving are essential, and these must be criteria which reflect not status but progress, not the attainment of goals as much as progress in formulating and moving toward goals.

The Formulation of Goals cannot be assessed by the mere ability to name one. Young children, at least in middle class families, are so often asked, and even told before they can answer, what they are going to be when they grow up, and school children are so often quizzed about their vocational plans and ambitions, that they tend to have ready answers. But the frequency with which these expressed goals change (Super and Crites, 1962; Rothney, 1958; Flanagan and Cooley, 1966) shows that they tend to lack a firm basis. Evidence suggests, in fact, that they have more stability and more relationship to adult occupations in upper and lower class children, whose careers are more completely determined by family traditions and conditions, than in the large majority of middle class children, whose circumstances not only permit but encourage self-expression and self-actualization in occupations found through development and exploration.

It seems important, therefore, to inquire concerning the basis for the expressed goal, evaluating its adequacy, and to assess changes in the adequacy of goals with increasing age and experience. This may be done by the use of realism or wisdom measures, such as those tried out in this project (Super and Overstreet, 1960; Heyde and Jordaan, in process), and by Gribbons and Lohnes (in press) in their replication. Both global ratings and more psychometric measures have been tried. Perhaps other more penetrating methods of assessing the formulation of goals can be devised.

Progress Toward Goals may be assessed by the analysis of occupations entered and positions taken, including both training and employment. These may be evaluated for their appropriateness, judged globally as in the study of coping behavior, or atomistically by comparing aspirations with attainments, or by measures of the relative goodness of fit of successively occupied positions when personal characteristics and occupational requirements are compared. The completion of various stages of education needed for entry into an occupation is another possible measure of progress toward a goal: the architecture student who completes his formal training has progressed toward his goal, but his fellow architect who has just passed his licensing examination has progressed still further. Such distinctions can be made at earlier stages of development, or at later, as in differentiating students who have applied to an architecture school from would-be architects who have not yet done so, or in ascertaining the steps men about to retire have taken to make the transition from full employment to retirement.

Just which criteria are appropriate depends, of course, on the purpose of the study and on the predictor variables which are of interest. A study of the amount and type of movement from one position to another will need to consider measures of coping behavior as well as the mere number of moves in relation to months in the labor force; a study of the process of entering and getting established in a suitable occupation needs measures of suitability and of changes in the suitability of positions and occupations.

Career Satisfaction, like occupational satisfaction, is essentially a subjective attitude. Unlike occupational satisfaction, it seems unlikely to lend itself to measurement by objective, behavioral, methods. Inferences can be drawn from absenteeism and from occupational change which may throw some light on occupational satisfaction, but career satisfaction involves a longer "event" which cannot be so treated. Ratings loom more importantly here, ratings by judges who know the subject's work history and attitudes well, and ratings by the subject himself, with all the needed safeguards. This appears to be par excellence a criterion to be obtained by means of self-report, after the subjects have been helped to make the distinction between occupation and career.

Types of Criteria

The theoretical framework of the Career Pattern Study, relevant aspects of which have been discussed earlier in this chapter and in that which precedes it, has led to the identification of three major types of criteria of success for use in a longitudinal study of vocational development. These are: 1) vocational coping behaviors, 2) scaled career behaviors and outcomes, and 3) occupational behaviors and outcomes. The second type is sub-divisible into two methodologically somewhat different categories, one scaled by rather complex methods, the other by simpler, in some instances mere summational, methods. The first type is derived by global judgement, the second and third by more precise psychometric methods. The specific measures are listed below. Their more detailed examination, with data on methods of obtaining scores or ratings, reliability, etc., is postponed until Chapter V, after a description of the design of the longitudinal study of which the vocational success data are an important part, descriptive data on the subjects (in Chapter III), and descriptions of the variables on which data were collected for possible prediction purposes during the junior and senior high school years (in Chapter IV).

Vocational Coping Behaviors

1. Floundering
2. Trial
3. Instrumentation
4. Establishment
5. Stagnation

Scaled Career Behaviors

1. Equity Change
2. Movement Realism
3. Goodness of Fit: Abilities
4. Goodness of Fit: Interests
5. Relation to Goal
6. Status Improvement: Occupational
7. Status Improvement: Educational
8. Career Development Total (sum of 1,2,5,6, and 7)

Career Statistics

1. Number of Moves
2. Number of Times Unemployed
3. Number of Months Unemployed
4. Number of Months Self-Supporting
5. Educational Level Attained
6. Educational Level Comparison
7. Educational Success: College Grade-Point Average

8. Career Satisfaction, Self-Estimated
9. Career Success, Self-Estimated
10. Career Establishment, Self-Reported
11. Attainment of High School Leaving Vocational Goal

Occupational Behaviors and Outcomes

1. Occupational Level Attained
2. Position Success, Self-Estimated
3. Position Success, Employer Rated
4. Occupational Success, Self-Estimated
5. Position Satisfaction, Self-Estimated
6. Occupational Satisfaction, Self-Estimated
7. Occupational Satisfaction, Self-Reported
8. Utilization of Assets, Self-Reported
9. Opportunity for Self-Expression, Self-Reported

Summary

The vocational coping behaviors which first challenged our attention in designing the follow-up of the Career Pattern Study subjects in their middle twenties, described in some detail in Chapter I, now appear as one global way of categorizing the early career behavior, which may perhaps be assessed with more specific, more quantitative, methods of treating similar data. It is these latter ways of viewing vocational behavior which have been discussed in general terms in this chapter, paving the way for more empirical treatment in Chapters V and VI.

CHAPTER III
A LONGITUDINAL STUDY OF VOCATIONAL DEVELOPMENT[1]

---

[1] This chapter is based in part on papers by Ralph LoCascio and Donald E. Super, presented at the 1963 meeting of the American Psychological Association and at the 1966 meeting of the American Personnel and Guidance Association.

This chapter describes the Career Pattern Study, an intensive longitudinal study of vocational development, placing this report in the perspective of the total sequence of reports. It then outlines the procedures used in following up the original eighth and ninth grade boys ten years after they were in the ninth grade, at approximately age 25, and discusses the results achieved by these methods. Finally, it reports the positions currently occupied by these boys, geographically, educationally, and occupationally.

The Career Pattern Study: 1951-1963

The Career Pattern Study, originally conceived in 1940, and the subject of preliminary field work in 1941 but shelved by wartime responsibilities, was planned in the Spring of 1951. Field work began in the Fall of that year. The first phase, including the theoretical framework and the basic data collection procedures, was described in the first monograph of the Career Pattern Study series (Super *et al.*, 1957). The second monograph (Super and Overstreet, 1960) reported the first results, an analysis of vocational maturity in ninth grade boys. A forthcoming monograph (Heyde and Jordaan, in process) continues the study of vocational maturity through the twelfth grade, reworking the ninth grade data in order to provide comparable measures at both ninth and twelfth grade levels, comparing the maturity levels of these two grades, and identifying the factorial structure of vocational maturity in ninth and twelfth grades. A brief account of the Study follows:

Subjects

The subjects of this study were all of the boys of Middletown, New York, who in the school year 1951-52 were enrolled in the public schools as ninth grade students, or who were then in the eighth grade and went on to ninth grade in Middletown the following year. These two groups are identified as the original ninth graders and the original eighth graders, or as 9-9s, 9-12s, 9-15s and 9-19s and as 8-8s, 8-12s, etc., the first digit indicating the grade in which the students were first studied and the digit following the hyphen indicating the grade (actual or hypothetical) in which procedures being discussed were used or when data being reported were collected. Grade 15 thus refers to a period of time three years after the subject would normally have been in twelfth grade, and grade 19 to a period seven years after the subject should have been in twelfth grade. These last periods are also sometimes referred to as ages 18 and 25, but it should be noted that these are the average ages of the group of subjects, and that any one subject may have been as much as a year or two younger or older at that stage.

There were 142 boys in the original ninth grade group, studied in the Fall and Winter of 1951-52, and 138 boys in the original eighth grade group studied in the Winter and Spring of 1951-52. The latter group was reduced, later, by the fact that only 116 of them entered the ninth grade in Middletown, some transfering to schools in other towns or dropping out on reaching the age of 16. Middletown High School was the only high school in the community, although there were public high schools in nearby communities such as Goshen and a small Catholic high school also in Goshen. The ninth grade in Middletown High School is generally larger than the eighth grade in the Junior High School because of transfers from the local Catholic elementary school, but these additional possible subjects were not included in the study because it would have necessitated either studying all eighth grade boys in the parochial school in order to be sure to have the transfers, or field work a year later to collect data from the actual transfers. Limitations of time and funds made these steps impractical.

The study was limited to boys, again for practical reasons. While it would have been highly desirable to conduct a parallel study of girls, fund granting agencies were not inclined, in 1950 and 1951, to give large sums for research in vocational development, and longitudinal studies over a span of twenty years were considered impractical and even visionary (the prevalent attitude seemed to be that they might happen, as in Terman's work, but that they could not be planned; as the experience of subsequent projects, such as Project Talent, shows, attitudes have changed). Funds were available for a study of 250-300 subjects, and it was decided they should all be of one sex. It is noteworthy that Gribbons and Lohnes (1965), in replicating this study with some significant variations, included both boys and girls even though their total number of 111 was considerably smaller than this study's N of 258.

Setting

Middletown is a town of about 23,000 inhabitants, located some 70 miles northwest of New York City. It lies in the center of a great valley, most of the land of which is used for dairy farming, although there are substantial wooded areas and hunting is one of the common local pastimes. The town itself is a market center for the valley, but in addition to shops it has a variety of small industries. The largest at the time the study was started, with about 400 employees, manufactured lawnmowers and saws; others made rulers and gauges, candy, fruit essences, shirts, underwear. The labor force was somewhat biased in the direction of semi-skilled jobs, and the town had a reputation as a better place for women's than for men's jobs. The relevant statistics are given in the first monograph in this series (Super *et al.*, 1957).

Since the basic data were collected there has been no significant change in the size of Middletown, but the establishment of an automobile assembly plant and of a business machines plant within easy driving distance has affected employment opportunities. Improved and new highways facilitate interurban travel. More Middletown men now find jobs at somewhat higher wages as a result.

The continuing development of the community college, started the year before the Career Pattern Study, has had the expected impact on the proportions of young people going on to some type of post-high-school education, as is reported later in this chapter. Just as the college plant, program, faculty, and student body have expanded, so have there been improvements in the public school system. A new Junior High School has been built, housing the seventh, eighth, and ninth grades. The ninth grade was moved back from the Senior High School, freeing space in that attractive but previously overcrowded building.

The total impact of new industries, new highways, and new educational facilities has done a good deal to change Middletown from a sleepy small town, whose main street came to life only on summer weekends when visitors clogged it on the way to or from the Catskill Mountains, to a more lively although by-passed small city. There appears now to be less reason for young people to complain that they cannot find suitable jobs there, marry, and establish homes. Middletown thus appears to have changed in ways which make it even more a middletown than when, in 1951, it was shown to be a typical small northeastern city.

Data Collection Methods

The basic data collection of 1951-52 (Super et al., 1957) consisted of about two days of questionnaires and tests, administered typically during the activities period at the beginning of the school day, four school periods of semi-structured and tape recorded interviews with each boy, and an hour-long interview with one or both of each boy's parents (also semi-structured and tape recorded). An occupational survey was also made of the town (Brochard, Beilin, and Thompson, 1954) in order adequately to portray the local employment situation. The basic data on the boys were analyzed in a study of vocational maturity in ninth grade (Super and Overstreet, 1960), and a number of other special studies, not covered by the monograph, were completed (Davis, 1956; Hamburger, 1958; Henderson, 1958; Heyde, 1959; Hummel, 1958; Mehenti, 1954; Nicholas, 1958; Overstreet, 1959; Super, 1961; Warnath, 1954).

The next formal contact with the boys took place when they would normally have been in the twelfth grade, in the Spring of 1955 for the original ninth graders and in 1956 for the original eighth graders. At this time they devoted two full school days to taking a battery of tests and questionnaires, designed to retest in some areas and to bring the record of their development and experience up to date. One school period was used for interviewing, which was scheduled to permit running over into a second period if desirable. Transfers were followed up in their new schools when this could be arranged. Dropouts were not given the full battery of tests, but were given an abbreviated battery and were interviewed when this could be arranged. Questionnaires were mailed to parents to get their current ideas as to their sons' development and futures.

A second, but less intensive, follow-up was made by mail in the Spring of 1958 (9-15s) and 1959 (8-15s), in order to bring the educational, employment, military, and personal histories up to date. At this time the subjects were college juniors if continuing their education on schedule, and aged about 21 years.

The first thorough post-school follow-up was that reported in this study, and took place in the Spring of 1962 for the original ninth graders and 1963 for the original eighth graders. The subjects were then about 25 years old. Each man was asked to devote a day to the follow-up contact, which was made as easy for him as possible in Middletown, in New York City, or (if he was near the Gulf Coast, west of the Mississippi, or in Europe or Asia) at some mutually convenient time and place. The day was devoted to a series of questionnaires leading up to and integrated with an interview which followed, and to taking a battery of tests. Reports were also obtained from educational institutions, employers, and commanding officers. The details are presented in the following section of this chapter.

In addition to the present report, certain other analyses of the 9-19 and 8-19 follow-ups have been and are being made. Chatel (1964) studied the effects of being in a career development study on the careers of those studied, using a control group. Marr (1964) examined certain relationships between attitudes toward parents and career decisions. Bell (1967) has done a thorough-going analysis of role models in vocational development. Bothwell (1967) examined the development of self-concepts through an analysis of metadimensions in grades 9 and 12, relating them also to criterion data from age 25. Gotkin (in process), in addition to doing the present work on coping behaviors and career development scales, is examining in other important ways the problem of criterion validity in the mid-twenties.

For those with a special interest in follow-up procedures, this section presents the steps taken, and the results obtained, in an attempt to maintain contact with subjects over a ten-year period. The sample referred to is the group of subjects who were in the ninth grade in Middletown, N.Y., in 1951-52. The same follow-up procedures were applied to a second sample (the boys who were in the eighth grade in Middletown, N.Y., in 1951-52, and who entered ninth grade in Middletown in 1952-53), approximately one year after each of the follow-ups with the ninth grade group. The last section of this chapter presents data on the age 25 status of subjects in both samples.

Follow-up Methods and Results[2]

The Initial Contact: 1951-52, Age 14-15

The Career Pattern Study first made contact with its 142 high school freshmen, all of the boys of that grade level in Middletown, New York, in the academic year 1951-52. There were then virtually no problems in securing the cooperation of the boys, who constituted a complete socioeconomic cross-section of the community, since the school authorities supported the project. In statements to the boys and to the school authorities individual participation in the study was described as strictly voluntary. Occasional later comments revealed a feeling of compulsion to cooperate in a few boys. However, the negative effects of real or imagined pressure were insignificant, as is indicated by the high percentage of subjects who, as will be seen, continued to cooperate after leaving high school.

The First Follow-up: 1955, Age 18

The research design called for a first follow-up in the Spring of the senior year in high school, when the boys would be about 18 years old. It was assumed that during the intervening years they would have been coping with the vocational development tasks of the early years of exploration, e.g., crystallizing and specifying a vocational preference, and that most would soon, at the time of leaving high school, be confronted with the task of implementing a vocational preference, even if only tentatively, in trial jobs or major fields of study.

As in the ninth grade, plans called for a battery of questionnaires, inventories, tests, and an interview all shown in Table III-1. Information was sought concerning the subjects' vocational development during the preceding three years. The data collection process was planned to take place on three different occasions for a total time equivalent to two school days. Preparatory activity consisted of discussions with community leaders, with members of the local advisory council, and with Middletown school officials, all of whom gave full support as they had done three years earlier. A letter was sent to all subjects in January, 1955, alerting them to, and generally describing, the nature of the coming contacts and asking them for their cooperation.

---

[2] The first draft of this section was written collaboratively by Ralph LoCascio and Donald E. Super, as a paper read at the meeting of the American Psychological Association, Philadelphia, August 30, 1963.

(Insert Table III-1 about here)

Collecting data from the 106 boys who were still in attendance at the high school proceeded smoothly enough. One boy had died during 1953; 35 not in school had to be accounted for. The last known addresses of these boys were obtained from the school records and were used in the January, 1955, mailing. The records indicated that nine of the boys had transferred to high schools in other cities; letters to the principals of those schools requested their support. The local newspaper cooperated by publishing a series of three articles about the study, designed to induce dropouts to cooperate. Attempts were made through the local post office to trace boys who had moved, and the aid of two qualified local interviewers was enlisted in locating and collecting data from missing subjects. Arrangements were made to use the offices of the Middletown Chamber of Commerce for meeting with dropouts, as the high school might arouse negative feelings.

These efforts resulted in the collection of data from 16 more boys. Of the remaining 19 subjects, 10 were in the armed forces and could not be seen due to budget and staff limitations, 7 (3 presumed transfers and 4 dropouts) could not be located, and 2 refused to cooperate. However, at least partial data were obtained on all of these subjects from the high school records.

Table III-1

FOLLOW-UP METHODS AND RESULTS IN THE CAREER PATTERN STUDY FOR BOTH ORIGINAL NINTH AND EIGHTH GRADE GROUPS

	Procedure	Instruments	N Sought	%	Attempts	N Secured	%
First Contact							
Ninth Grade (9-9) 1951-52 Age 14-15	Interpretation to sch. officials, community leaders, boys, parents, public.	Tests and questionnaires (2 days), interviews (4 periods). Parent interviews.	142	100	Routine testing and interviewing in sch.	142	100
Eighth Grade (8-8) 1951-52 Age 13-14	As above.	As above.	138	100	As above.	137	100
First Follow-up							
Ninth Grade (9-12) Spring 1955 Age 17-18	Interpretation again, as above.	Tests and questionnaires (2 days), interviews (1 period), school records. Parent questionnaire.	141 (one death)	100		122	86
			106 in MHS		Tested in sch.	106	75
			9 transfers 10 in service 7 lost 9 other dropouts		Field visits to dropouts.	122	86
Eighth Grade (8-12) Spring 1956 Age 17-18	As above.	As above.	116* 84 in MHS 7 transfers 1 early grad. 24 dropouts	100	Total seen.	92	79

---

* Twenty-two original eighth graders did not enter ninth grade in Middletown High School in September 1952, and were later dropped from the study.

TABLE III-1 (cont.)

	Procedure	Instruments	N Sought	%	Attempts	N Secured	%
Second Follow-up							
Ninth Grade (9-15) Spring 1958 Age 20-21	Addresses from files, directories, return postcards; certified letters; sch. staff; local psychologist field visitor.	Mailed quest.: 70 pages, in topical sections, accompanied by $2 and promise of $3 more when returned.	140 (2nd death) 4 lost 6 refusals 7 failed to cooperate	100		123	88
					Location		
					1st class letter, re. address.	76	54
					2nd letter.	111	79
					Sch. officials.	140	100
					Data Collection		
					Quest., cert. mail.	74	53
					Postcard reminder.	99	71
					Letter and same quest.	106	76
					Visits by local psych.	123	88
Eighth Grade (8-15) Spring 1959 Age 20-21	As above.	As above.	115 (one death)	100	Total number of questionnaires returned	92	80
Third Follow-up							
Ninth Grade (9-19) Spring 1962 Age 24-25	Interpretation to sch. officials, community leaders, Ss, and the public. Addresses as for 2nd follow-up, plus inquiry of armed forces, former employers, newspaper files. Alert letters, appointment quest., expense plus $25 pay promised.	Personally administered quest. battery and coordinated interview and test, 1 day in Middletown or NYC. Reports from schools and colleges, armed forces, employers.	140 0 lost 8 refusals, of whom 4 are hopeless	100	Accounted for: location, occupation.	140	100
					Complete data.	132	94
					Appointment Quest.		
					138 cert. letters, re. appointment	75	53
					43 phoned.	92	66
					35 sent 1st class letter.	106	76
					16 sent letter.	111	79
					Data Collection		
					Routine Middletown/NYC.	88	63
					Visits to homes.	118	84
					Trips to Gulf,W. Coast.	130	93
					Overseas.	132	94
Eighth Grade (8-19) Spring 1963 Age 24-25	As above.	As above.	114 2 lost 5 refusals	100	Accounted for:		
					location,	112	98
					occupation.	109	96
					Partial data.	107	94
					Complete data.	102	89

To summarize, then, the first follow-up contact during the Spring of 1955 obtained data directly from 122, or 86 percent, of the 141 surviving original ninth graders through personal contact.

The Second Follow-up: 1958, Age 21

Plans called for a second follow-up in the Spring of 1958, three years after the first group of boys, now young men, would have graduated from high school and would be about 21 years old. It was hypothesized that during this period most men deal with the task of implementing a vocational preference in training or at work: either implementing high-school-leaving preferences or specifying and beginning to implement new preferences as a result of experience. Partly because of confidence in questionnaire methods for collecting relevant data, and partly for economy reasons, this follow-up was done by mail.

Addresses of the original ninth graders were brought up to date in the Fall of 1957. A first mailing list of 140 names and addresses (a second subject had died since the last contact) was compiled using the current Middletown telephone and city directories and the latest information in project files (sometimes new addresses were received on Christmas cards, wedding announcements, etc., sent by subjects). In October, 1957, a first class letter was sent asking subjects to report their current educational and employment status and addresses on an enclosed self-addressed card. The purpose of this mailing was a first effort to bring addresses up to date for mailing of the questionnaires. Seventy-six or 54 percent of the cards were returned, completed.

In November, 1957, a second wave of letters containing return postcards was sent to non-respondents by certified mail, return receipt requested. As a result an additional 35 cards were received, for a total of 111 out of 140, or 79 percent. Of the remaining 29, 12 letters were returned unopened, suggesting wrong addresses. A Middletown school staff member secured the most recent addresses of these 12 subjects. The other 17 subjects apparently received their letters (or others accepted the letters for them), but did not reply.

The questionnaire consisted of 70 pages designed to yield data concerning vocational development (including education) since leaving high school. While most subjects would be required to complete less than half of the 70 pages, which were arranged by topic and color to make selection of appropriate sections easy, the task could conceivably take the least literate two or three hours. Partly to compensate for the time required and partly to provide an incentive to cooperate, it was decided to pay each subject five dollars for completing the questionnaire. Two dollars were sent with the questionnaire, and the covering letter included a statement to the effect that an additional three dollars would be mailed when the completed questionnaire was returned.

In May, 1958, the questionnaires, covering letter, and two one-dollar bills were sent by certified mail, return receipt requested, to the 140 survivors of the original ninth grade group. Three weeks later returns amounted to 74 questionnaires, or 53 percent. Of the remaining 66 questionnaires, 7 had been returned unclained, 2 were returned by subjects who refused to cooperate, and 57 had apparently been received but not returned. A postcard was sent to these 57, and 25 more completed questionnaires were returned, for a total of 99, or 71 percent. Non-respondents now numbered 41, including 8 unreached, 2 refusals, and 31 who had presumably received questionnaires but had not returned them. A third follow-up was sent to the 31, consisting of a letter with another copy of the questionnaire. This brought in 7 more completed questionnaires, for a total of 106, 76 percent of the original ninth grade group, a substantial return for a questionnaire of such length mailed to heterogeneous subjects.

A field follow-up was planned in order to obtain questionnaires from more of the 34 non-cooperating subjects, consisting of 10 unreached, one whose material was returned blank with information that the subject was in military service, 21 presumably reached but not respondent, and 2 refusals. In October of 1958 the names of, and information concerning, 32 of the 34 remaining subjects were turned over to a psychologist associated with the Community College in Middletown (the refusal of the 2 non-cooperators was honored). He secured changed addresses for routine follow-up and made personal contacts to secure cooperation. He attempted to persuade subjects who had received but not returned questionnaires that they should do so. New resources used to locate subjects included relatives and friends of the subjects, former landlords, and neighbors at old addresses. The field follow-up produced 17 more completed questionnaires, for a final total of 123 or 88 percent of the surviving original ninth graders, 2 percent more than the number cooperating in 1955 when most of the subjects were a captive group in high school.

Of the remaining 17 subjects, 6 stated definitely that they did not want to cooperate, 7 did not overtly refuse cooperation but could be classified as passive resistors, and 4 could not be located. At the next data collection, four years later, all 4 of these lost subjects were located, tested and interviewed; of the 13 uncooperative subjects, only 6 (2 of the overt and 4 of the covert non-cooperators) then refused. Attrition in longitudinal studies can clearly be diminished by re-contacting subjects who have been lost or who have dropped out in the past. It seems important to understand the apparent tendency of overt non-cooperators to become cooperative some years later, and of covert non-cooperators to maintain their negative posture.

The Third Follow-up: 1962, Age 25

The third follow-up was planned for approximately age 25, 10 years after the original contact in the ninth grade, 7 years after the first follow-up at age 17 or 18 and four years after the second follow-up at age 20 or 21. Theory (Super et al., 1957) has it that by this time the majority of subjects would have virtually completed the developmental tasks of vocational exploration and would be dealing with those of establishment. A three-year grant from the Cooperative Research Program of the U.S. Office of Education, added to the project's regular budget from the Horace Mann-Lincoln Institute of School Experimentation, made it possible to collect intensive data on floundering, trial, instrumentation, and establishment during the early and middle-twenties. An all day meeting with each subject was decided upon, during which he would complete relevant questionnaires and have a personal interview. In addition several tests and inventories would be administered.

The data collection period was to be April and May, 1962. To assure community support, the project director and the coordinator of the third follow-up visited Middletown in November, 1961. Meetings were held with the superintendent of schools, the executive vice-president of the chamber of commerce, the president of the local community college, and several randomly selected but previously cooperative subjects: all voiced their interest in, and support of, the study. Meetings were also held with the principal and appropriate staff members of the Senior High School, who provided offices for testing and interviewing subjects who preferred to be seen in Middletown rather than in New York City. In order to alert the local community and to aid in obtaining cooperation, the local newspapers printed an article about the study in February of 1962 and ran two appropriate pictures in April and May.

Throughout this period addresses were brought up to date. Most of the techniques of the second follow-up were used, plus some new ones, e.g., letters of inquiry to the armed forces, visits to former employers, and search of local newspaper items. Although not all subjects had definitely been located by the time of the first mailing, these efforts were kept up until every one of the surviving 140 original ninth graders had been located.

In December, 1961, an informative letter was sent to the subjects, in which they were alerted to plans for a personal meeting in April or May. It was explained that all expenses, including compensation for their time, would be paid, and the importance of their help was stressed. One hundred and nineteen of the letters were sent by first class mail to subjects whose addresses were established. Sixteen additional letters were sent by certified mail, with a request for a return receipt indicating to whom and where delivered, because the addresses were questionable. Five subjects had not yet been located and could not be alerted at this time.

In late January, 1962, a letter was sent to 138 of the young men (2 subjects had not yet been located), explaining in more detail the plans for meeting. It was reiterated that the project would pay all travel expenses (if they lived east of the Mississippi River, otherwise special plans were to be made) plus $25 to compensate for the day spent with the Study. The letter was sent by certified mail, providing a return receipt showing where and to whom delivered. A one-page appointment questionnaire was enclosed with the request to complete and return it for use in making arrangements for the interview. Special letters were written to those who had not cooperated four years earlier. Seventy-five appointment questionnaires (2 with letters refusing cooperation) were returned, 53 percent of the experimental group of 140. Telephone contacts were made four weeks later with 43 subjects or with relatives whose Middletown telephone numbers were listed. After these phone calls, 17 more questionnaires were returned for a total of 92, or 66 percent of the total group.

Three weeks after the telephone contact a follow-up letter was sent by first class mail, with a second appointment questionnaire, to 35 of the remaining 48 subjects. The letter was not sent to 6 subjects because the results of the last mailing had indicated a lack of current addresses, nor to another 6 because they were too far away to be handled routinely, nor to one who had previously asked to be seen in May. Fourteen more questionnaires were returned after this mailing for a total of 106, or 76 percent.

In May, 1962, while interviewing was under way, another follow-up letter was sent by first class mail to 16 of the 34 subjects who had not yet returned questionnaires and whose addresses were definite. The remaining 18 were omitted for various appropriate reasons. Five more questionnaires were returned for a final total of 111, or 79 percent.

In April and May, 1962, 82 or 59 percent of the surviving 140 subjects, were tested and interviewed (see Appendix A) as scheduled by correspondence. During June a Career Pattern Study staff member took a trip to the West Coast to meet with 7 subjects, another staff member went to the Gulf Coast to meet with 5 subjects, 2 more men were seen as a result of regular scheduling, and 22 "hard-to-get" subjects were seen as a result of persuasion by three staff members who went persistently into the field. Subsequent appointments were made with 6 subjects as they came back from overseas military service, with 4 more hard-to-gets, and with 2 "lost" subjects who were finally located. In addition, a vacationing staff member arranged to meet with a subject in Turkey and the project director interviewed another subject while attending a meeting in Paris. All cooperating subjects were sent letters of appreciation.

Thus a total of 132, or 94 percent, of the 140 survivors of the original ninth grade group were interviewed and tested. This is 6 percent higher than the number cooperating at the second follow-up and 8 percent higher than the number cooperating at the first follow-up. The remaining 8 uninterviewed subjects at age 25 have been classified as uncooperative, although only 4 seem irrevocably to be in this category, in the judgement of staff members who know them.

Status of Career Pattern Study Subjects at Age 25

It is pertinent to inquire, next, concerning the status of the surviving ninth and eighth grade boys ten years later, at about age 25. This section focuses on the ninth grade sample, but relevant data are presented for both groups. Geographic location is shown in Table III-2. Seventy-six percent of the 140 surviving ninth graders are located in the Northeastern United States, 68 percent in or near Middletown, and 58 percent live in Middletown or its immediate vicinity. Only 24 percent are outside of the Northeast, and this includes those in military or student status; if military and student subjects are excluded, 91 percent are in the Northeast, and 87 percent within easy reach of Middletown. Of the 112 surviving eighth graders whose whereabouts are known, 83 percent are in the Northeast, 68 percent in or near Middletown, and 62 percent in Middletown or its immediate vicinity. When military and student subjects are excluded, 94 percent are in the Northeast, with 84 percent close to Middletown. Despite the fact that these subjects are reaching the period of establishment, with most of their uprooting educational and military experience behind them, they have not moved very far from home.

(Insert Table III-2 about here)

The educational attainments of this typical cross-section of young men are reported in Table III-3, for those subjects for whom relevant data were available. At 9-19, by about age 25, a total of 85 percent of the original group had graduated from high school, 46 percent had gone on to some kind of

Table III-2
GEOGRAPHICAL LOCATION AT 9-19 AND AT 8-19

	No. of Individuals								Percent			
	Military		School		Other*		Total		Other*		Total	
Location	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19
Northeast	1	5	10	7	96	81	107	93	91	94	76	83
Middletown & Vicinity	-	2	1	2	80	66	81	70	76	77	58	63
So.N.Y.,No.N.J.,East Pa.	-	-	2	1	12	6	14	7	11	7	10	6
No.N.Y.,So.N.J.,West Pa.	-	1	6	1	1	7	7	9	1	8	5	8
New England	1	2	1	3	3	2	5	7	3	2	4	6
South	10	8	1	1	4	2	15	11	4	2	11	10
East North Central (Ind.,Mich.,Wisc.)	-	-	2	1	1	-	3	1	1	-	2	1
West (Ariz.,Calif., N. Mex.,Wash.)	2	1	-	-	4	3	6	4	4	3	4	4
Overseas	9	3	-	-	-	-	9	3	-	-	6	3
Total	22	17	13	9	105	86	140	112**	100	99	99	101

---

[*] Includes all those not in military service or away at school

[**] Excludes two subjects, whereabouts unknown.

post-high-school education (about twice that which, according to school records, had characterized classes three years ahead of this one, when there was no local community college), 26 percent had finished two years of college or of technical training, 17 had graduated from four-year colleges, 11 percent had gone beyond the bachelor's, and 4 percent had obtained a master's degree or equivalent. Educational attainments were similar for the 8-19 group with 84 percent high school graduates and 46 percent completing some kind of post-high-school education. In this group, however, more subjects went on to higher education, 30 percent completing two or more years of college or technical training, and 21 percent completing four years of college. Nine percent went on beyond the bachelor's level and 5 percent completed the master's. A breakdown of the 9-19 group into those who graduated from college, those with less than four years of college, and those who did not go to college, revealed that median ninth grade Otis IQ's for the three subgroups were 112, 106, and 98, respectively. All subjects with IQ's above 116, and none with IQ's lower than 92, eventually entered college.

The Parental Occupational Level and Vocational Aspiration Level, at 9-9, of subjects who never went on to college were at least one step lower (on a seven-point scale) than those of college-bound subjects.

(Insert Table III-3 about here)

Table III-4 shows that while only 95 of the 140 survivors graduated on schedule from Middletown High School in 1955, or one year late in 1956, two more returned to graduate after droppint out, and 6 transferred to other schools and graduated, for a total of 103, 74 percent, graduating by 1957. Figures are comparable for the 8-19 group, as shown in Table III-5. If we take into account high-school-equivalency diplomas won by examination in later years, the dropout rate is cut, by about 35 percent, from 26 percent to

Table III-3
EDUCATION: HIGHEST LEVEL ATTAINED AT 9-19 AND 8-19

Level	9-19			8-19		
	No. of Individuals*	%	Cum. %	No. of Individuals**	%	Cum. %
1. Graduate 1 (M.D.,Ph.D.,LL.B.,etc.)	-	-	-	-	-	-
2. Master's degree plus some work toward higher degree or equivalent (high level on-the-job training), but pre-M.D.,Ph.D., LL.B.,etc.	3	2	2	2	2	2
3. Graduate 2 (Master's degree or equivalent level on-the-job training).	2	2	4	3	3	5
4. Bachelor's degree plus some work toward higher degree or equivalent (on-the-job training), but pre-Master's degree.	9	7	11	4	4	9
5. College, 4 years: graduation.	8	6	17	13	12	21
6. College, junior college, technical institute (granting an Associate degree); completion of 2 years but less than 4 years of college: junior college or technical institute graduation.	12	9	26	10	9	30
7. College, junior college, technical institute; less than 2 years.	27	20	46	17	16	46
8. High school graduation plus apprenticeship, on-the-job training, or technical school (business or trade; diploma or certificate awarding school).	16	12	58	3	3	49
9. High school graduation.	35	27	85	38	35	84
10. Some high school plus apprenticeship or on-the-job training.	5	4	89	7	6	90
11. Some high school.	15	11	100	11	10	100
Total	132	100	100	108	100	100

---

*Excludes 8 subjects from whom cooperation was not obtained, and 2 deceased.

**Excludes 6 uncooperative subjects for whom no educational data beyond high school were available, and 2 deceased.

17 percent for the ninth grade group, and by about 28 percent, from 22 percent to 17 percent for the eighth grade group. Thus 83 percent of the 9-19 group, and 80 percent of the 8-19 group, held diplomas by about age 25. It seems clear that motivation to complete high school changes during the years after dropping out.

(Insert Tables III-4 and III-5 about here)

Table III-6 presents the employment status of 140 9-19 subjects, in 1962. A total of 92 men were employed, 7 were seeking jobs, 22 were in the armed forces, and 15 were students or hospital patients who were not in the labor force. That more high school dropouts than graduates were in military service is suggested by this table, and by the fact that of the 10 career military men, 8 were dropouts of whom 5 had secured equivalency diplomas. Table III-7 presents the employment status of the 8-19 subjects, in 1963. Relatively fewer of the dropouts in this group chose the military as a career; of six 8-19 career military men, only two were dropouts.

(Insert Tables III-6 and III-7 about here)

Tables III-8 and III-9 present the occupational levels of subjects in classifiable civilian occupations. The 9-19 distribution is normal and typical, except for the lack of higher level professional and managerial occupations, as might be expected in a group of young men. It is noteworthy that the dropouts, of both types, are limited to the lowest levels, unlike the graduates. At 8-19, there is a heavier concentration of subjects in the semi-skilled occupations, 40 percent compared to 28 percent at 9-19. Again, dropouts seem to be limited to the lowest levels, while no members of the group have yet attained the higher level professional and managerial occupations.

(Insert Tables III-8 and III-9 about here)

Tables III-10 and III-11 report the fields of employment of the men in

Table III-4
EDUCATIONAL ATTAINMENT OF MIDDLETOWN HIGH SCHOOL FRESHMEN OF 1951-52 STILL LIVING IN 1962

Total	Graduated MHS 1955 or 1956	Dropped Out Returned-Grad.	Total MHS Graduates		Transfers Graduates	Total Grads. by 1957	
140	95	2	97	69%	6	102	74%

Dropouts						Total Diploma Recipients by 1962	
Rec'd Equivalency Diploma		Non-Diploma		Total			
13	9%	24	17%	37	26%	116	83%

TABLE III-5
EDUCATIONAL ATTAINMENT OF MIDDLETOWN HIGH SCHOOL FRESHMEN OF 1952-53 STILL LIVING IN 1963

Total	Graduated MHS 1956 or 1957	Dropped Out Returned-Grad.	Total MHS Graduates		Transfers Graduates	Total Grads. by 1958	
114	77	1	78	68%	6	84	74%

Dropouts						No Information			Total Diploma by 1963	
Rec'd Equivalency Diploma		Non-Diploma		Total		Dropouts	Transfers	Total		
7	6%	18	17%	25	22%	4	1	4%	91	80%

Table III-6
EMPLOYMENT STATUS OF 9-19 SUBJECTS IN THE SPRING OF 1962

Status	Total		Grads.		Equiv. Diploma	Dropouts
	N	%	N	%	N	N
Employed by others	92	65	68	66	7	17
Self-employed	4	3	4	4	0	0
Job hunting	7	5	6	6	0	0
Not in labor market	13	11	13	13	0	1
Military service	24	16	12	12	6	6
Total	140	100	103	101	13	24

Table III-7
EMPLOYMENT STATUS OF 8-19 SUBJECTS IN THE SPRING OF 1963

Status	Total		Grads.		Equiv. Diploma	Dropouts
	N	%	N	%	N	N
Employed by others	73	67	53	63	6	14
Self-employed	3	3	3	4	-	-
Job hunting	6	6	4	5	-	2
Not in labor market	10	9	10	12	-	-
Military service	17	16	14	17	-	3
Total*	109	101	84	101	6	19

---

*Excludes 5 subjects for whom no information was available.

Table III-8
OCCUPATIONAL LEVELS OF 9-19 GRADUATES AND DROPOUTS, INTERVIEWED WHILE EMPLOYED IN 1962

	Total		Grads.		Equiv. Diploma	Dropouts
Level	N	%	N	%	N	N
Prof'l-Mgr'l (Higher)	-	-	-	-	-	-
Prof'l-Mgr'l (Reg.)	6	6	6	8	-	-
Semi-Prof'l-Mgr'l	25	26	23	32	-	2
Skilled	29	31	24	34	1	4
Semi-skilled	27	28	13	18	4	10
Unskilled	8	9	5	7	2	1
Total*	95	100	71	99	7	17

---

*Excludes those not in civilian jobs (students, military, etc.) and 1 self-employed who could not be classified.

Table III-9
OCCUPATIONAL LEVELS OF 8-19 GRADUATES AND DROPOUTS, INTERVIEWED WHILE EMPLOYED IN 1963

	Total		Grads.		Equiv. Diploma	Dropouts
Level	N	%	N	%	N	N
Prof'l-Mgr'l (Higher)	-	-	-	-	-	-
Prof'l-Mgr'l (Reg.)	4	5	4	7	-	-
Semi-Prof'l-Mgr'l	14	18	13	23	1	-
Skilled	22	29	18	32	-	4
Semi-skilled	31	40	19	34	5	7
Unskilled	5	7	2	4	-	3
Total*	76	100	56	100	6	14

---

[*] Excludes those not in civilian jobs (students, military, etc.).

classifiable civilian occupations. At 9-19, the distribution of the total group is according to expectations, and the dropouts are severely limited as to fields of work (it should be remembered that their technological employment is, as shown by Table III-8, at the lowest skill levels). The distribution of the total group is similar at 8-19. Although 8-19 dropouts, like those at 9-19, tend to fill occupations in the technology field, they do occupy a wider range of occupational fields than dropouts in the 9-19 group.

(Insert Tables III-10 and III-11 about here)

Tables III-12 and III-13 give the data on the self-estimated occupational and career success of the men for whom such data were relevant. It should be noted that occupation is here defined as by Shartle, and that career means the sequence of educational and occupational positions held. That this distinction was successfully made by the subjects was due to a sequence of questions which in effect programmed the distinction into their thinking, and is demonstrated by correlations of .50 and .41 between the two ratings at 9-19 and 8-19 respectively. At 9-19, about two-thirds of the total group, and of graduates and dropouts treated separately, considered themselves as successful as the average man their age in their occupation, and one-tenth or fewer considered themselves less successful than the average. Table III-13 shows comparable figures at 8-19, except that one-sixth of the holders of equivalency diplomas considered themselves less successful than others their age in their occupation. With regard to career success, however, only one-twelfth or fewer of graduates in both groups believed that they had not handled their careers well, while from one-fifth to one-third of dropouts considered that they had handled their career development badly--figures which have to be viewed with caution because of small numbers. Occupational success tends to be rated as average, but there appears to be more of a tendency for graduates to rate career success as above average, and for dropouts to rate career success less favorable, than their

TABLE III-10
OCCUPATIONAL FIELDS OF GRADUATES AND DROPOUTS, FRESHMEN OF 1951-52 INTERVIEWED WHILE EMPLOYED IN 1962

	Total		Grads.		Equiv. Diploma	Dropouts
Field (Roe)	N	%	N	%	N	N
Service	10	11	10	14	-	-
Business Contact	11	12	10	14	-	1
Business Organiz.	16	16	12	17	2	2
Technology	47	50	28	39	5	14
Outdoor	5	5	5	7	-	-
Science	1	1	1	1	-	-
General Culture	5	5	5	7	-	-
Arts & Entertainment	-	-	-	-	-	-
Total*	95	100	71	99	7	17

---

[*] Excludes those not in civilian jobs (students, military, etc.) and 1 self-employed who could not be classified.

TABLE III-11
OCCUPATIONAL FIELDS OF GRADUATES AND DROPOUTS, FRESHMEN OF 1952-53 INTERVIEWED WHILE EMPLOYED IN 1963

Field (Roe)	Total		Grads.		Equiv. Diploma	Dropouts
	N	%	N	%	N	N
Service	6	8	4	7	-	2
Business Contact	8	11	7	12	-	1
Business Organiz.	13	17	10	18	1	2
Technology	41	54	30	54	4	7
Outdoor	3	4	2	4	-	1
Science	3	4	2	3	-	1
General Culture	1	1	-	-	-	-
Arts & Entertainment	1	1	-	-	1	-
Total*	76	100	56	100	6	14

---

*Excludes those not in civilian jobs (students, military, etc.)

occupational success.

(Insert Tables III-12 and III-13 about here)

Conclusions

Several important generalizations concerning the conduct of longitudinal studies and the career development of young men appear to follow from what has been reported in this chapter:

1. Attrition should not be expected or accepted in a longitudinal study, even when the subjects constitute an intellectual and socioeconomic cross-section. On the contrary, the salvaging of many lost and uncooperative cases can be expected with the passage of time.

2. The bringing to bear of appropriate financial resources and methods, plus perseverance and tact, can insure returns from all but an insignificant number of subjects.

3. Geographic mobility during the years following high school and college-leaving is not substantial and presents no great difficulty in follow-up other than that of causing delay and expense in reaching subjects.

4. When a community college is available, the percentage of students continuing education beyond high school increases greatly, but many of these students do not complete two years.

5. After the lapse of several years, the high school dropout rate is substantially reduced by changed motivation and by the resumption of educational endeavors.

6. Military service may serve as a refuge or outlet for a significant proportion of dropouts.

7. The occupational opportunities of dropouts are severly limited as to both level and field when compared to those of high school graduates, by the time they have attained the age of about 25.

TABLE III-12
SELF-RATED OCCUPATIONAL AND CAREER SUCCESS
FRESHMEN OF 1951-52 IN 1962

Occupational Success	Total		Grads.		Equiv. Diploma		Dropouts	
	N	%	N	%	N	%	N	%
Above Average	31	26	22	26	4	29	5	28
Average	76	64	55	65	9	64	12	67
Below Average	11	9	9	10	1	7	1	6
Total*	118	99	86	101	14	100	18	101
Career Success								
Above Average	56	43	44	45	5	33	7	44
Average	53	41	42	43	6	40	5	31
Below Average	20	16	12	12	4	27	4	25
Total**	129	100	98	100	15	100	16	100

---

*Excludes 8 uncooperative subjects, 11 who did not rate occupational success because of student status, and 3 unscorable responses.

**Excludes 8 uncooperative subjects and 3 unscorable responses.

TABLE III-13
SELF-RATED OCCUPATIONAL AND CAREER SUCCESS
FRESHMEN OF 1952-53 IN 1963

Occupational Success	Total		Grads.		Equiv. Diploma		Dropouts	
	N	%	N	%	N	%	N	%
Above Average	31	29	25	30	1	17	5	28
Average	65	61	49	59	4	67	12	67
Below Average	11	10	9	11	1	17	1	6
Total*	107	100	83	100	6	101	18	101
Career Success								
Above Average	57	53	47	57	3	50	7	39
Average	35	33	27	32	1	17	7	39
Below Average	15	14	9	11	2	33	4	22
Total**	107	100	83	100	6	100	18	100

---

[*] Excludes 7 subjects from whom cooperation had not yet been obtained.

[**] Excludes 7 uncooperative subjects.

8. It is possible, by use of appropriate methods, to get even the less educated subjects to make a useful distinction between occupation and career.

9. Dropouts consider themselves as successful in their occupations as high school graduates do in theirs, most members of each group considering themselves as successful as others in their occupations. But dropouts believe that they have handled their careers less effectively than do graduates. More dropouts believe that they have entered blind alleys or have prematurely reached the excessively low ceiling of their careers, and more tend to devaluate career success ratings rather than to inflate them as do graduates.

CHAPTER IV

POSSIBLE PREDICTORS AND CORRELATES OF YOUNG ADULT VOCATIONAL BEHAVIOR

One of the questions most frequently raised by educators and by employers is that of the early determinants or predictors of adult vocational behavior, of the handling of career decisions, the making of vocational adjustments, the achievement of occupational success, and the finding of vocational satisfaction. And it is not only the antecedents that are of interest and of importance: the concomitants or correlates are also the subject of inquiry, for personnel selection as well as for staff development.

The Career Pattern Study has therefore sought not only to describe careers and to record the frequency of various types of career behavior, but also to relate antecedent and occasionally concurrent variables to these behaviors. Two types of variables have been of interest. The most important, because hitherto unstudied and virtually undefined, is vocational maturity. The other type of predictor or concomitant is more familiar and much more frequently studied: it includes the standard measures of personal characteristics, background, and achievement typically used in educational personnel work, in educational and vocational counseling, and in personnel selection and development.

This chapter briefly described these two types of variables, and uses them to report the twelfth grade and young adult standing of the two samples of boys who are the subjects of this longitudinal study. The descriptions are brief and, in the case of the vocational maturity indices, not as detailed as is necessary for a full understanding of the procedures used. Neither do they suffice for replication in other studies, as has been done with the first set of measures previously reported (Super and Overstreet, 1960) by researchers in the American Southwest (Wilstach, 1967), and in the Philippines (Asis[1]),nor for use as a basis on which to build more manageable instruments as has been attempted by Crites (1965), Gribbons and Lohnes (1966), and Westbrook[2]. Details of this current Career Pattern Study work are reported in Monograph III of the Career Pattern Study series (Heyde and Jordaan, in process).

---

[1] Edith Greenman Asis, personal communications to the senior author, September, 1965, September, 1966, and March, 1967.

Vocational Maturity in High School

The Problem

As described in the first monograph of the Career Pattern Study (Super *et al.*, 1957), the principal objective of this project is the developmental study of vocational choice and adjustment. Vocational maturity, defined as the behavior of the individual in coping with the vocational developmental tasks of his life stage, compared with that of his peers, was deemed to be the key construct in such a study. Accordingly, approximately twenty possible indices of vocational maturity were developed, many of them consisting of a number of smaller components and elements (Super, 1955; Super *et al.*, 1957). These were refined by logical analysis and grouped in *a priori* categories called dimensions. Some were considered conceptually adequate, others were thought of as theoretically unsatisfactory but worthy of study because of frequent use by counselors. They needed empirical refinement and reduction in number.

The Solutions

Three different solutions to the problems of conceptual unevenness and numerical profusion were tried, each selected as appropriate for the task and to the resources at hand.

The cross-sectional study in the ninth grade (Super and Overstreet, 1960), had no external criteria against which to validate the measures devised, for every possible measure was *ipso facto* a predictor. The logic of construct validity and of internal consistency were therefore applied: every measure was, in an appropriate series of steps, correlated with every other. The grouping of elements into components, of components into indices, and of indices into dimensions was empirically tested, and those which in fact clustered according to the logic were considered valid, a few for which a new clustering emerged were reclassified, and those which did not in fact cluster appropriately according to either _a priori_ or _a posteriori_ logic, were considered invalid. A factor analysis of the elements of a few selected indices, of a scope possible with the computer capacity of that time, threw additional light on the structure of vocational maturity in the ninth grade.

---

[2] Bert Westbrook, personal correspondence with the senior author, June, 1967.

The longitudinal study of the high-school years (Heyde and Jordaan, in process), used not only the data collected in ninth grade but similar data collected from the same subjects in the twelfth grade. It refined the constructs and the measures of vocational maturity, keeping both the previously invalid measures (some of which might have validity at a more mature stage) and the valid measures. It made the measures applicable at both grade levels, so that standing at the two points in time could be compared in a study of vocational development. Taking advantage of more advanced computer capabilities, more than 80 elements of vocational maturity (the smallest units of data worked with in these studies) were analyzed and reduced to 62. These were then factor analyzed in a principal components analysis with varimax rotation at both the ninth grade and the twelfth grade levels. Twenty factors were identified in twelfth grade (18 in ninth), and factor scores were developed. These procedures, the results, and comparisons of the two grade levels, essentially ages 15 and 18, are the substance of the Heyde and Jordaan monograph, Career Pattern Study Monograph III.

The longitudinal study of vocational development in adolescence and young adulthood, the subject of this report, builds on the work of Monograph III, but treats the vocational maturity measures somewhat differently. Instead of using factor scores, which have some theoretical and practical advantages, it uses element scores. These have the advantage of being more readily and simply defined operationally, because they reflect directly the behaviors observed by the researchers or reported by teachers, parents, and the subjects themselves. The results may therefore be more immediately useful to practitioners.

But a list of 62 measures would be so long as to be unmanageable. To reduce it, a preliminary run of factor scores against criteria at age 25 was carried out, and the 9 factors (of the total of 20) which showed promise as predictors in grade 12 were selected for further study. The vocational maturity measures which had the highest loadings on these 9 factors were included among those to be studied in this analysis. There were 17 such measures in grade 12, and 15 of these were also available from grade 9. The 20 factors, with the elements and their loadings when these exceeded .35, are shown in Table IV-1. The measures which are used in this analysis are marked by a plus sign, those not used are designated by a minus sign. The vocational maturity measures used in this study are, as a result of the processes just described, those which are most representative of the factors which showed promise of having predictive validity.

(Insert Table IV-1 about here)

Table IV-1 lists eight Occupational Information factors, three of which showed promise as predictors of young adult vocational success. These three are: Training and Education, Employment Prospects, and Hours and Psychological Conditions of Work. The first factor is represented in the present study by five scales, which assess knowledge of the high-school background required, the training and education needed after high school, and plans for qualifying

Table IV-1
FACTORS, ELEMENTS, AND FACTOR LOADINGS, OF MEASURES USED OR NOT USED IN PREDICTION OF YOUNG ADULT VOCATIONAL BEHAVIOR (N=103 12th GRADE BOYS)

Factor	Measure (Element)	Used	Loading
1. Occ'l Information: Education	Specificity of Info. Preferred Occupation Requirements: Training & Education	+	.80
	Range of Info.: All Occupations Requirements: High School Background	+	.80
	Range of Info.: All Occupations Requirements: Training & Education	+	.78
	Specificity of Info. Pref. Occ. Requirements: High School Background	+	.75
	Specificity of Voc'l Planning Plans for Qual. for Pref. Occ.	+	.69
	Extent & Quality of Sources of Info.	-	.47
	Acceptance Respon. for Choice & Planning Acceptance Respon: Education & Training	-	.45
	Range of Vocational Planning	-	.41
	Implementation of Voc'l Pref. Steps to Obtain Relevant Beg. Job or Post-H.S. Training or Education	-	.40
	Awareness of Various Aspects of Occ's.	-	.39
	Acceptance Respon. for Choice & Planning Acceptance Respon: Choosing Occupation	-	.36
2. Occ'l Info.: Psych. Require.	Range of Info.: All Occupations Psychological Requirements	-	.73
	Specificity of Info. Pref. Occ. Psychological Requirements	-	.72
	Range of Info.: All Occupations Duties: Why It Is Done	-	.47
	Awareness of Various Aspects of Occ's.	-	.45
3. Crystal. & Spec. Voc'l Pref.	No. Fields of Work under Consideration (low score good)	-	-.86

Factor	Measure (Element)	Used	Loading
	Consistency Voc'l Preferences within Families (low score good)	-	-.86
	Consistency Voc'l Preferences within Fields (low score good)	-	-.84
	Consistency of Voc'l Preferences within Levels (low score good)	-	-.59
	No. of Voc'l Poss. under Consideration (low score good)	-	-.52
	Specificity of Voc'l Preference	-	.50
4. Indep. Work Exper.	Nature of Work Experience Auspices of Work	+	.87
	Nature of Work Experience Self-Employment	+	.82
	Nature of Work Experience Respon. for Init. & Obtaining Employ.	-	.51
5. Agreemt. Bet. Int's & Voc'l Preferences	Agreemt. S's Meas. Interests & Interests of Persons in All Occ's under Consideration (low score good)	-	-.93
	Agreemt. S's Meas. Interests & Interests of Persons in His Pref. Occ.(s) (low score good)	-	-.92
	Presence of Primary Interest Pattern II	-	.38
6. Occ'l Info.: Employ. Prospects	Range of Info.: All Occupations Opportunities: Supply & Demand	+	.87
	Specificity of Info. Pref. Occ. Opportunity: Supply & Demand	+	.85
7. Occ'l Info.: Hrs. & Psychsoc. Work Conditions	Range of Info.: All Occupations Conditions of Work: Hours	+	.69
	Range of Info.: All Occupations Conditions of Work: Psychosocial Conditions	-	.63
	Implementation of Voc'l Pref. Obtaining or Taking Steps to Obtain Relevant Work Experience	-	.46
	Awareness of Various Aspects of Occ's.	-	.37

Factor	Measure (Element)	Used	Loading
8. Socioecon. Access. Voc'l Preferences	Socioecon. Access.: All Occ's under Consideration (low score good)	+	-.87
	Socioecon. Access.: Pref. Occ.(s) (low score good)	+	-.86
	Consideration of Alternatives	-	.40
9. Implem. Voc'l Pref.: H.S. Curr., Etc.	Implementation of Voc'l Pref. Steps to Qual. Beg. Job or Post-H.S. Training or Education Relevant to Pref. Occ.: H.S. Curr., Courses, Etc.	-	.75
	Range of Implementation	-	.59
10. Range of Voc'l Planning	Range of Vocational Planning	-	.65
	Specificity of Voc'l Planning Plans for Obtain. Beg. Job or Post-H.S. Training & Education Leading to Pref. Occ.	-	.58
	Range of Info.: All Occupations Conditions of Work: Security	-	.58
	Commitment	-	.53
11. Crystal. of Interests	Presence of Primary Interest Pattern I	+	.83
	Presence of Primary Interest Pattern II	-	.64
12. Occ'l Info.: Advmt. & Transfer Possibilities	Specificity of Info. Pref. Occ. Opportunity: Advancement & Transfer	-	.84
	Range of Info.: All Occupations Opportunities: Advancement & Transfer	-	.82
	Range of Info.: All Occupations Conditions of Work: Security	-	.38
13. Agreemt. Bet. Abil. & Voc'l Preferences	Agreemt. S's Intellectual Abil. & Intellectual Requirements Pref. Occ.(s)	+	.85
	Agreemt. S's Intellectual Abil. & Intellectual Abil. Required by All Occ's under Consideration	+	.82
14. Wk. Exper.: Size Estab. Worked For	Nature of Work Experience Size of Establishment	-	.76
	Nature of Work Experience Extent of Extra-curr. Work Exper.	-	.39

Factor	Measure (Element)	Used	Loading
	Nature of Work Experience Respon. for Init. & Obtaining Employ.	-	.38
	Specificity of Voc'l Preference	-	.36
15. Occ'l Info.: Financial Requirements	Range of Info.: All Occupations Requirements: Econonic Requirements	-	.83
	Specificity of Info. Pref. Occ. Requirements: Econ. Requirements	-	.78
	Specificity of Info. Pref. Occ. Duties: What is Done	-	.53
	Range of Info.: All Occupations Duties: What Is Done	-	.45
	Awareness of Contingency Factors	-	.36
	Specificity of Voc'l Planning Plans for Qual. for Pref. Occ.	-	.35
16. Interest Maturity	Interest Maturity	+	.72
	Consideration of Alternatives	-	.47
	Awareness of Contingency Factors	-	.45
17. Occ'l Info.: Earnings	Specificity of Info. Pref. Occ. Conditions of Work: Monetary Reward	-	.82
	Range of Info.: All Occupations Conditions of Work: Monetary Reward	-	.81
	Range of Info.: All Occupations Conditions of Work: Physical Conditions	-	.64
	Specificity of Voc'l Planning Plans for Qual. Beg. Job or Post-H.S. Training or Education Leading to Pref. Occ.	-	.37
	Awareness of Various Aspects of Occ's	-	.35
18. Accep. Respon.: Choice & Planning	Accep. Respon. for Choice & Planning Accep. Respon. for Obtaining Employ., Further Educ., Training and/or Educ.	-	.77
	Implementation of Voc'l Preference Steps to Obtain Relevant Beg. Job or Post-H.S. Training or Education	-	.51

Factor	Measure (Element)	Used	Loading
19. Implem. Voc'l Pref.: Selection Relevant Extra-curr. Activities	Implementation of Voc'l Preference Selection of Relevant Extra-curr. Activities	+	.83
	Range of Implementation	-	.42
20. Occ'l Info.: Entry Poss.	Range of Info.: All Occupations Opportunities: Entry	-	.79
	Specificity of Info. Pref. Occ. Opportunity: Entry	-	.73
	Accep. Respon. for Choice & Planning Accep. Respon. for Choosing an Occ.	-	.56
	Specificity of Voc'l Planning Plans for Actually Getting into the Pref. Occ.	-	.42

for the preferred occupation, and the first two types of information concerning all occupations discussed by the boy in his interviews. The second of these factors is represented by supply and demand information concerning both the preferred occupation and all occupations discussed. The third of these factors is represented by the measure of knowledge of hours worked. The other information factors, which deal with Psychological Requirements, Advancement and Transfer, Financial Requirements, Earnings, and Entry, showed so little promise of validity that they were not included in the prediction study.

Other factors which showed sufficient promise to be included in this study are: Independence of Work Experience, Socioeconomic Accessibility, Agreement between Abilities and Preferences (this and the factor before it being logically but not empirically in the same broad Wisdom category), Crystallization of Interests, Interest Maturity (these two measures being in the logical Crystallization of Traits category), and Implementation in Extracurricular Activities. The measures representing them in the prediction study are readily identified in Table IV-1.

Factors showing insufficient promise, in addition to the Information factors already listed, are Crystallization and Specification of Vocational Preference, Agreement of Interests and Preferences (another Wisdom measure), Implementation in Curriculum, Range of Vocational Planning, Work Experience: Size of Establishment, and Acceptance of Responsibility for Choice and Planning.

It is noteworthy that the factors which emerge from the factor analysis are quite specific, even though they often include several measures with heavy loadings, as shown in Table IV-1, as well as other less heavily loading variables reported only in the Heyde-Jordaan monograph (in process). (Reducing them to second-order factors is not possible as they are orthogonal.) Given a choice between rather specific factors and the original measures, the heavily loading original measures were, as already indicated, selected for study.

The means and standard deviations of the VM scores of the original eighth and ninth graders when in twelfth grade are shown in Table IV-2. None of the differences between the two samples is statistically significant.

(Insert Table IV-2 about here)

Correlates in Junior and Senior High School

In addition to measures specifically devised to assess vocational maturity, the Career Pattern Study has made use of several more conventional measures thought to be relevant to vocational behavior. These additional variables, which included measures of ability, socioeconomic status, aspiration, and achievement in junior and senior high school, are essentially the correlates of vocational maturity reported in earlier monographs.[3] Detailed descriptions of the measures, including scoring methods and reliability, may be found in the earlier reports (revised procedures are in the later report). This section presents only a brief description of the distribution of each variable for each of the experimental groups, the original ninth graders and the original eighth graders who later entered ninth grade, that is, the subjects who were in ninth and eighth grades, respectively, in Middletown, New York, in 1951-52.

The twenty-five correlates are listed in Table IV-3. Ten of these variables were used at both junior-high-school (eighth or ninth grade) and senior-high-school (twelfth grade) levels. Five others appear only at the earlier level, and an additional ten which tap activities during the high-school years appear only at the later level.

(Insert Table IV-3 about here)

---

[3] Super, D.E. and Overstreet, Phoebe L. The vocational maturity of ninth grade boys. New York: Bureau of Publications, Teachers Coll., Columbia Univer., 1960; and Heyde, Martha B., and Jordaan, J.P. The high school years. New York: Teachers College Press (in process).

Table IV-2
SELECTED VM ELEMENTS: MEANS AND STANDARD DEVIATIONS IN GRADE 12

	N		$\bar{X}$		S.D.	
VM Elements	9-12	8-12	9-12	8-12	9-12	8-12
Specificity of Information Requirements: High School Background	103	88	2.18	1.98	1.21	.97
Specificity of Information Requirements: Training and Education	103	88	4.14	3.35	2.29	2.11
Specificity of Information Requirements: Supply and Demand	103	88	1.61	1.20	.90	.57
Range of Information: All Occupations Requirements: High School Background	103	88	2.11	1.92	.83	.83
Range of Information: All Occupations Requirements: Training and Education	103	88	3.03	2.46	1.14	1.12
Range of Information: All Occupations Conditions of Work: Hours	103	88	1.73	1.40	.83	.69
Range of Information: All Occupations Opportunity: Supply and Demand	103	88	1.63	1.15	.70	.39
Specificity of Vocational Planning	103	--	4.87	--	2.26	--
		(Not Scored at 8-12)				
Implementation of Vocational Pref. Selection of Relevant Extra-curr. Activities	103	--	1.94	--	1.27	--
		(Not Scored at 8-12)				
Interest Maturity (SVIB)	103	79	42.42	46.01	9.25	11.90
Presence of Primary Interest Pattern I	103	80	1.21	1.32	.41	.47
Nature of Work Exper.: Self-Employment	103	88	2.09	1.99	.35	.28
Nature of Work Exper.: Auspices of Work	103	88	2.97	2.85	.47	.52
Socioecon. Access. of Pref. Occ.(s)	103	88	2.74	2.91	1.37	1.42
Socioecon. Access. of All Occ.(s) under Consideration	103	88	248.74	275.82	129.31	132.69
Agreemt. bet. Intellectual Abil. and Intellectual Requirements of Pref. Occ.(s)	103	88	1.38	1.38	.49	.49
Agreemt. bet. Intellectual Abil. and Intellectual Requirements of All Occupations	103	88	-2.06	-2.12	2.30	2.26

Table IV-3
CORRELATES OF VOCATIONAL BEHAVIOR IN JUNIOR AND SENIOR HIGH SCHOOL

Intelligence

Socioeconomic Status

- Parental Occupational Level
- House Rating

Level of Aspiration

- Boy's Vocational Aspiration Level
- +*Agreement between Levels of Vocational Aspiration and Expectation
- School Curriculum
- +*Presence of Parental Vocational Aspiration for Boy

Achievement

- School Achievement: Grades
- School Achievement vs. Underachievement
- **Participation in School Activities (four measures)
- **Participation in Out-of-School Activities (six measures)
- *Peer Acceptance

Miscellaneous

- Age
- *Birth Order
- +*Rural vs. Urban Residence
- Religious Affiliation: Protestant
- Religious Affiliation: Catholic

---

*These variables appear only at the junior-high-school level.

**These variables appear only at the senior-high-school level.

+These variables omitted for the eighth grade group.

For several of these correlates, a low raw score indicated a greater amount of the characteristic being measured, and a high raw score indicated a lesser amount. With Parental Occupational Level, for instance, low scores represented higher levels. Signs of the coefficients of correlations involving these variables were therefore reversed when necessary, to facilitate interpretation.

Intelligence

The subject's score on the Verbal Reasoning Test of the Differential Aptitude Test (Form A), was used for this measure. Scores for the eighth and ninth grade groups are compared with norms for corresponding grade levels in Table IV-4. While the mean score at 8-8 does not differ from the eighth grade norm, it does differ from the mean score of the 12-month older group at 9-9. This difference was significant at the .05 level (t = 2.288, 189 degrees of freedom, two-tailed test). It should be noted that, except for certain measures assessing achievement in the freshman year of high school, and designated as 8-9 measures, the junior-high-school variables for the eighth grade group are actually based on eighth grade data. Thus, the significantly lower mean D.A.T. score for the eighth grade group presumably reflects the lower age rather than a lower ability level of this group as compared with the ninth grade group. The two samples are legitimately compared in twelfth grade, where the difference is non-significant.

Table IV-4
INTELLIGENCE IN JUNIOR AND SENIOR HIGH SCHOOL

					Norms*	
Group and Level	N	Range	Mean	S.D.	Mean	S.D.
9-9	103	4-45	18.7	8.4	18.3	8.7
8-8	88	2-43	16.0	8.1	15.8	7.9
9-12	103	4-56	28.9	9.9	29.3	9.2
8-12	88	7-49	27.3	9.9	29.3	9.2

---

*Norms for corresponding grade levels were obtained from the D.A.T. Manual, Psychological Corporation, 1959.

Socioeconomic Status

Parental Occupational Level. The occupational level of the principal breadwinner of the family, usually the father, was rated using the Hamburger (1958) Revision of the Occupational Rating Scale in the Warner Index of Status Characteristics.[4] On this scale, a low score signifies a high occupational level. Table IV-5 presents the distributions of parental occupational levels for both experimental groups, at junior- and senior-high-school levels. Levels tended to fall at or below the middle of the seven-point scale. There were no significant differences between the means and variances of the two groups, at either level.

Table IV-5
PARENTAL OCCUPATIONAL LEVEL IN JUNIOR
AND SENIOR HIGH SCHOOL

Occupational Level	9-9		9-12		8-8		8-12	
	N	%	N	%	N	%	N	%
1	5	5	6	6	3	3	3	3
2	8	8	9	9	5	6	5	6
3	13	13	17	16	9	10	10	11
4	26	25	23	22	21	24	19	22
5	20	19	16	16	20	23	24	27
6	28	27	27	26	27	31	24	27
7	3	3	5	5	3	3	3	3
Total	103	100	103	100	88	100	88	99
Mean	4.40		4.31		4.62		4.59	
S.D.	1.51		1.62		1.42		1.41	

House Rating. Houses were rated on a seven-point scale modified from Warner's (1949), ranging from scores of one for houses considered "excellent", through seven for "very poor" houses. Table IV-6 presents means and standard deviations at both junior- and senior-high levels. A t-test of the difference between the means for both samples at the senior-high level revealed no significant difference.

---

[4] Warner, W.L., Meeker, Marchia, and Eells, K. Social class in America. Chicago: Science Research Associates, 1949.

Table IV-6
HOUSE RATING

Group and Level	Mean Level	S.D.
9-9	4.64	1.06
8-8	4.51	.98
9-12	4.64	1.06
8-12	4.38	.94

Level of Aspiration

Boy's Vocational Aspiration Level. The subject's first vocational preference (or, lacking, the mean of all of his preferences) was rated for occupational level using the Hamburger (1958) Revision of the Warner Scale. Table IV-7 presents the means and standard deviations for both samples at junior- and senior-high-school levels. When these figures are compared with the parental occupational levels presented in Table IV-5 it is clear that, as might be expected, high school boys who tended to come from middle and lower-middle class homes, aspired to occupations at least one level higher than those held by their parents. There was no significant difference between the means of the two samples at the .05 level.

Table IV-7
BOY'S VOCATIONAL ASPIRATION LEVEL

Group and Level	N	Mean Aspiration Level	t	S.D.	F
9-9	103	2.99	NS	1.29	1.4521*
8-8	88	2.75		1.54	
9-12	103	3.00	NS	1.38	NS
8-12	88	2.84		1.39	

---

*Significant at .10 level, two-tailed test.

Agreement between Levels of Vocational Aspiration and Expectation. For 66 boys in the ninth grade group, levels of aspiration and expectation tended to agree when rated on the revised Warner Scale (see above). For the remaining 37 boys, there was either a large discrepancy between their expected and aspired levels, or there was no indication of an expected occupation. This agreement measure was not used at 8-8, since insufficient data were available concerning levels of expectation.

School Curriculum. Table IV-8 presents the number and percentage of students in each group who were taking Regents level courses in their freshman year at Middletown High School and the number and percentage of those who graduated with a Regents Diploma in their senior year. Significantly more 9-9 than 8-9 students elected a Regents curriculum (z = 4.41, significant at the .01 level, two-tailed test). Compared to the eighth grade group, which entered Middletown High School from the local public junior high school, the ninth grade group was more heterogeneous; it drew pupils from both public and parochial schools. Expectations and aspirations may thus have differed for the two samples, depending upon guidance and orientation to high school curricula received before entering the ninth grade. There was no significant difference between the percentage of subjects in each group who graduated with a Regents Diploma in their senior year.

Table IV-8
SCHOOL CURRICULUM

Group and Level	Regents Courses	
	N	%
9-9	84	82
8-9	46	52
	Regents Diploma	
	N	%
9-12	34	35
8-12	34	39

Presence of Parental Vocational Aspiration for Boy. For 57, or 55 percent, of the ninth grade group, parents expressed a vocational aspiration for their sons. Insufficient data prevented use of this measure at 8-8.

Achievement

School Achievement: Grades. At the junior-high level, grades in English, general science, and citizenship education were averaged to obtain a score for this measure. The overall high-school average, obtained from the official high-school transcript, was used at the twelfth grade level. Table IV-9 presents the relevant statistics for both groups. There was no significant differences between the samples with regard to means, but the difference between the variances at 8-12 vs. 9-12 was significant at the .02 level.

Table IV-9
GRADES IN JUNIOR AND SENIOR HIGH SCHOOL

Group and Level	N	Range	Mean	t	S.D.	F
9-9	103	57-92	76.97	NS	6.57	NS
8-9	88	56-96	77.36		7.53	
9-12	103	65-90	75.11	NS	5.47	1.6283*
8-12	88	62-95	75.53		6.98	

---

*Significant at the .02 level, two-tailed test.

School Achievement vs. Underachievement. Regression equations were computed on the basis of the correlations between school grades and the D.A.T. Verbal Reasoning score. Separate equations were computed for the Regents and Non-Regents groups. A subject was considered an "achiever" if his actual grade-point average was equal to or greater than his predicted grade-point average, and an "underachiever" if the actual grade-point average was lower than the predicted.

For the ninth grade group, at the junior-high level, 62 percent were achievers. At the senior-high level, 55 percent of the same group were achievers.

For the eighth-grade group, 56 percent were achievers at the junior-high level. Sixty-four percent were achievers at the later level. There were no significant differences between the percentages of achievers in the two groups, at either the ninth or twelfth grade level.

Participation in School Activities. Four measures assessed various aspects of participation in school activities. It was believed that these implicit measures of commitment during the high-school years might be related to other more direct measures of vocational development.

a) The number of activities engaged in for a minimum of two years, an overall measure of participation.

b) The total number of activity years of participation tapped the extent of participation.

c) The total number of activities regardless of duration tapped the breadth of involvement.

d) The average number of years of participation per activity, a measure of the depth of commitment to activities.

Table IV-10 presents the ranges, means, and standard deviations at 9-12 and 8-12. The two groups did not differ significantly with regard to the four measures.

Table IV-10
PARTICIPATION IN SCHOOL ACTIVITIES

Measure	Group and Level	N	Range	Mean	S.D.
a) Overall	9-12	103	0-9	1.8	1.74
	8-12	88	0-8	1.5	1.66
b) Extent	9-12	103	0-29	7.6	5.98
	8-12	88	0-28	6.5	5.72
c) Breadth	9-12	103	0-14	4.5	3.21
	8-12	88	0-16	4.2	3.44
d) Depth	9-12	103	0-4	1.6	.84
	8-12	88	0-4	1.5	.83

Participation in Out-of-School Activities. Two measures assessed participation in vocational activities, and four assessed participation in avocational activities. With regard to employment, it was thought that actually spending time and energy on employment during high school might be related to other Career Pattern Study variables. Measures assessing participation in avocational activities were identical to those measuring participation in school activities, except for their auspices. Boy Scouts, church choir, YMCA, were included, whereas reading, stamp collecting, hiking, etc., were not included. As with participation in school activities, it was felt that these implicit measures of commitment might be related to other Career Pattern Study variables.

Vocational
a) The number of years of after-school and weekend employment.

b) The number of years of summer employment.

Avocational
a) The number of activities participated in for a minimum of two years.

b) The total number of activity years of participation.

c) The total number of activities regardless of duration.

d) The average number of years of participation per activity.

Table IV-11 presents ranges, means, and standard deviations for both 9-12 and 8-12 groups. There were no significant differences.

(Insert Table IV-11 about here)

Table IV-11
PARTICIPATION IN OUT-OF-SCHOOL ACTIVITIES

Measure	Group and Level	N	Range	Mean	t	S.D.	F	df
Vocational								
a) After-School	9-12	103	0-4	1.5	NS	1.46	1.0571	
	8-12	88	0-4	1.8		1.42		
b) Summer	9-12	103	0-3	1.8	NS	1.12	1.1377+	102/87
	8-12	88	0-3	1.65		1.05		
Avocational								
a) 2 Years	9-12	103	0-3	.5	NS	.80	NS	
	8-12	88	0-3	.7		.95		
b) Total Years	9-12	103	0-11	2.4	NS	2.36	NS	
	8-12	88	0-16	2.7		3.07		
c) Total Activities	9-12	103	0-6	1.5	NS	1.28	NS	
	8-12	88	0-6	1.3		1.28		
d) Average Years	9-12	103	0-4	1.3	NS	.98	NS	
	8-12	88	0-4	1.4		1.25		

+An F of 1.39 is significant at the .10 level, two-tailed test, for 87 and 102 degrees of freedom.

Peer Acceptance. A score on this measure consisted of the algebraic sum of the positive and negative descriptions assigned to an individual by his peers. Table IV-12 presents the relevant figures. While the difference between the means was not significant, the slightly higher mean score at 8-8 might be attributed to the fact that the subjects in this sample, unlike those in the 9-9 group, had spent more time together (and presumably come to regard each other more positively) prior to the testing than had the subjects in the 9-9 sample.

Table IV-12
PEER ACCEPTANCE AT THE JUNIOR HIGH SCHOOL LEVEL

Group and Level	N	Range	Mean	t	S.D.	F
9-9	103	-34 - +81	+3.0	1.3915*	14.10	2.1076**
8-8	88	-38 - +82	+6.6		20.47	

---

*A t of 1.645 is needed for significance at the .10 level, two-tailed test.
**An F of 1.59 is significant at the .02 level, two-tailed test.

Miscellaneous

Age. The average age of the core group of the 103 subjects in the ninth grade in their high-school-freshman year, was 14 years, two and one-half-months, with a standard deviation of 9.35 months. The average age of the 88 subjects in the eighth grade group, in the eighth grade when data were first collected from them, was 13 years, four months, with a standard deviation of 9.11 months. When this latter group entered the ninth grade in Middletown High School their average age was 14 years, four months, with a standard deviation of 9.11 months. Neither the difference between variances, nor that between the mean ages for both groups, while in the ninth grade, was significant.

Birth Order. Of the 103 subjects in the ninth grade group, 50, or 48 percent, were first-born. Of the 88 eighth graders, 38, or 43 percent were first-born. The difference between the proportion of first-born in each group was not significant.

Rural vs. Urban Residence. Seventy-three percent (N = 75) of the ninth grade group were urban residents, at the junior-high level. No comparable analyses were made for the eighth grade group, because the rural students all lived so close to Middletown as to minimize the supposed distinction.

Religious Affiliation: Protestant-Catholic. In the ninth grade group, 52 subjects, or 50 percent of the group, claimed affiliation with a Protestant church. Forty-three subjects, or 41 percent of the group, were Catholic. Approximately nine and one-half percent indicated either no religion, or one other than Protestant or Catholic. Jews were too small a group to treat separately.

In the eighth grade group, at the junior-high level, 57 subjects, or 65 percent of the group, were Protestant, while 22, or 25 percent, were Catholic. About 10 percent of the group indicated either no religious affiliation or one other than Protestant or Catholic. The difference between the proportion of Catholics in each group was significant at the .05 level, two-tailed test ($z = 2.32$), with the ninth grade group containing more Catholics. The difference between the proportion of Protestants in each group was also significant, at the .05 level, two-tailed test ($z = 2.08$).

The local Catholic school was a kindergarten to eighth-grade school, with pupils going from parochial to public school at ninth grade. Thus the ninth grade group drew Catholics from both public and parochial schools, while the eighth grade group included only those Catholics who had been enrolled in the local public school. At 8-12, the percentage of Catholics in the group had increased to 26 percent, while that of Protestants declined to 62 percent. About 12 percent were in the third ("none" or "other" category). There was no change in the religious composition of the original ninth grade group, from

9-9 to 9-12.

Summary: Correlates in High School

The original eighth and ninth grade groups did not differ significantly with regard to the majority of socioeconomic, aspiration, achievement, and miscellaneous measures presented in this section. In general, the subjects came from middle and lower-middle class homes, and aspired to occupations at least one level higher than those held by their fathers. Their verbal ability scores did not differ from national norms for corresponding grade levels. More than half of the subjects were judged "achievers" in high school, that is, were working up to their ability. Mean grade-point averages ranged from 75-80. There was a greater proportion of students taking Regents curriculum at 9-9 than at 8-8, but this difference disappeared at the twelfth grade level, when more than one-third of each group graduated with a Regents diploma. These few differences between the groups may reflect their religious composition and prior schooling, the ninth grade group having a significantly greater proportion of Catholics because of transfers to the public school after eighth grade. Aside from this religious difference and related variables, the groups are essentially similar.

Correlates of Vocational Behavior at Age 25

Six variables which do not in themselves assess vocational behavior in young adulthood, but which may be relevant to it, are listed in Table IV-13. They include measures of socioeconomic status and adjustment. Each of these variables, assessed at age 25, is described in the following section.

The six variables were intercorrelated and the results appear in Table IV-18. Pearson product-moment coefficients of correlation were computed between the continuous measures, point biserial r's were computed between marital status, a dichotomous measure, and the other, continuous, measures, and phi coefficients were computed between marital status and other dichotomous measures. In three instances (indicated in Table IV-13), a low score on a variable was indicative of a greater amount of the characteristic being measured, and a high score indicated a lesser amount. Low scores on Parental Occupational Level, for instance, signified a high occupational level. In such cases, the signs of the coefficients of correlations reported were reversed. The number of subjects varies from 84 to 103, depending upon the data available.

Table IV-13
CORRELATES OF VOCATIONAL BEHAVIOR AT AGE 25

Socioeconomic Status

- Parental Occupational Level*
- Family Social Mobility
- Cultural Participation

Miscellaneous

- Independence
- Adjustment (Incomplete Sentences Blank)*
- Marital Status*

---

*Signs of correlation coefficients reported in this chapter and in Chapter VII that involved these variables were reversed when necessary.

Socioeconomic Status

Parental Occupational Level. The occupation of the principal breadwinner of the subject's family, at the time of the age-25 follow-up, was rated, using the Hamburger Revision of the Warner Scale. When there was a change in family composition since high school, the following guidelines were used:

1. The new "family" was defined in terms of the parent with whom the subject lived, or to whom he indicated allegiance.

2. If the subject lived with or indicated allegiance to his mother, her occupation was rated unless she had remarried. In that case, the new husband's occupation was rated, if he qualified as head of the household.

Two judges working independently attained 85 percent agreement in assigning levels to occupations. Differences were resolved. Parental Occupational Level data were available for 100 of the original ninth graders when seen at age 25. The mean was 4.23, and the standard deviation 1.64. For 84 original eighth graders seen at age 25, the mean level was 4.44, and the standard deviation 1.42. There were no significant differences between the means or variances of the two groups.

Family Social Mobility. This variable assessed the discrepancy between Parental Occupational Level at the junior-high and age-25 contacts. Ratings were assigned according to the Hamburger Revision of the Warner Scale.

When the age-25 parental level exceeded the earlier rating a positive discepancy score was assigned: +1 for one level difference, +2 for two levels, etc. When the later level fell below the junior-high rating, a negative discrepancy score was assigned: -1 for one level difference, etc. Table IV-14 presents the relevant figures. Although the mean discrepancy score for both samples was positive, it represents lees than one whole step of upward movement. The majority of family levels actually stayed constant, while about one-fourth rose and about one-eighth declined.

(Insert Table IV-14 about here)

Cultural Participation. Scores on a scale of the Biographical Inventory, Form HAS, were used for this measure. The Biographical Inventory, specifically developed for the Career Pattern Study by Super and others, and first administered to the subjects in 1951-52, is described in an earlier monograph

Table IV-14
FAMILY SOCIAL MOBILITY FROM JUNIOR HIGH SCHOOL TO AGE 25

Group and Level	N	Range	Mean Discrepancy	t	S.D.	F
9-19	99	-4 - +3	+.10	NS	1.05	1.5625*
8-19	84	-2 - +3	+.15		.84	

	Percent Declining	Percent Rising	Percent No Change
9-19	11	22	67
8-19	14	24	62

---

*An F of 1.65 is significant at the .02 level, two-tailed test, for 98 and 83 degrees of freedom.
An F of 1.42 is significant at the .10 level, two-tailed test, for 98 and 83 degrees of freedom.

(Super and Overstreet, 1960).

The HAS version of the Biographical Inventory was developed during 1961-62 and 1962-63 for use in the age-25 follow-ups.[5] It was a multiple-choice test of 299 items, covering a variety of experiences which young men may have had by age 25. Some of the items were adapted from earlier versions of the test administered during the high-school years; the remainder were derived and modified from other research inventories developed by staff members. The 299 items were grouped into six scales, each of which assesses psychological traits assumed to be relevant for the purposes of this study: Achievement Competence, Achievement Motivation, Independence, Cultural Participation, Social Participation, and Neuroticism. Cultural Participation and Independence each serve as correlates for this report. The two scales had an intercorrelation of .36.

The Cultural Participation scale measures the extent to which an individual has been engaged in activities or experiences which reflect an awareness of the environment and the culture (broadly defined). An individual high in cultural participation is likely to have traveled widely, to have visited a number of industrial, recreational, and governmental establishments, to have been exposed to and/or engaged in a variety of artistic, scientific, intellectual, manual, or technical pursuits.

Table IV-15
CULTURAL PARTICIPATION

Group and Level	N	Range	Mean Score	t	S.D.	F
9-19	103	11-180	76.78	NS	39.04	NS
8-19	87	13-168	70.09		36.42	

---

[5] The Biographical Inventory, Form HAS, mimeographed: on file at the Career Pattern Study, Teachers College, Columbia Univer.

Miscellaneous

Independence. Scores on the Independence scale of the Biographical Inventory, Form HAS, were used for this measure. The scale assesses the degree to which an individual relies upon himself in setting and attaining goals and acquiring new skills. The independent individual is likely to attempt and to be expected to develop autonomy and self-discipline early in life and to be decisive, planful, and responsible to himself in academic, occupational, social, and leisure-time activities.

Table IV-16 presents ranges, means, and standard deviations for Independence scores.

Table IV-16
INDEPENDENCE

Group and Level	N	Range	Mean Score	t	S.D.	F
9-19	103	62-122	98.20	NS	10.30	1.37618*
8-19	87	75-125	99.60		8.78	

---

*An F of 1.39 is needed at the .10 level of significance.

Adjustment. An adaptation of the Rotter Incomplete Sentences Blank closely resembling the original College Form was administered to the Career Pattern Study subjects at the age-25 contact. The Rotter test consists of forty "stems" which the subject is to complete. The completions are scored by comparing them against typical responses in empirically derived scoring manuals for men and women. The total score is an index of maladjustment. In the Career Pattern Study adaptation, 36 of the original Rotter stems were used; the four remaining were modified in ways which did not affect scoring.

Rotter found a cut-off score of 135 on his test useful in separating adjusted from maladjusted college students. In the Career Pattern Study samples, 26 percent of the 9-19 group and 15 percent of the 8-19 group scored 135 or above, as compared with 29 percent of Rotter's group of 214 college males (Rotter and Rafferty, 1950). Ranges, means, and standard deviations for 9-19 and 8-19 appear in Table IV-17. The difference between the mean scores for the two groups was significant at the .01 level, with the 8-19 group better adjusted.

Table IV-17
ADJUSTMENT

Group and Level	N	Range	Mean Score	t	S.D.	F
9-19	103	78-181	126.44	2.6194*	16.28	NS
8-19	86	74-153	120.56		15.68	

---

*A t of 2.576 is significant at the .01 level, two-tailed test.

Marital Status. This variable was treated as a dichotomy. Married subjects received a score of 1, single subjects (including divorced) received a 2. Of 103 original ninth graders seen at age 25, 63 percent were married. Of 88 original eighth graders, 64 percent were married.

Summary

In the period since junior high school, the subjects' parental occupational levels had, on the average, moved upward very slightly; in general, parents still held occupations classified as middle or lower-middle class. At age 25, almost two-thirds of the subjects were married. Scores on the Independence and Cultural Participation scales of the Biographical Inventory were comparable for the two samples at age 25, but on the Rotter Incomplete Sentences Blank, the 8-19 group received higher scores on adjustment (difference between group means significant at the .01 level).

(Insert Table IV-18 about here)

Table IV-18
INTERCORRELATIONS AMONG AGE 25 CORRELATES OF VOCATIONAL BEHAVIOR FOR THE 9-19 AND 8-19 GROUPS
(N=99 to 103 at 9-19; N=84 to 88 at 8-19)

	Family Social Mobility		Cult'l Part.		Indep.		Adjust-ment		Marital Status	
	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19
Parental Occ'l Level	.45*	.27**	.51*	.38*	.12	-.17	.02	-.22**	-.16	-.20
Family Social Mobility			.09	-.02	-.10	.04	.04	-.04	-.24**	.02
Cultural Participation					.25+	.04	.06	-.04	-.17	-.09
Independence							.04	.01	-.19**	-.06
Adjustment									.10	.22**
Marital Status										

═ *Significant at the .01 level, two-tailed test.

— **Significant at the .05 level, two-tailed test.

═ +Significant at the .01 level, one-tailed test.

Summary

This chapter has described the antecedent variables, both vocational maturity measures and correlates or standard measures used in high schools, used in studying the boys of the Career Pattern Study. The rationale for studying vocational maturity was developed in the first monograph in this series. The second monograph described these and the standard measures in some detail. Revisions made in the vocational maturity measures are the major subject of the third monograph in this series, of which the description in this report is a detailed summary.

Seventeen measures of vocational maturity (15 in the replication group) were selected on the basis of a factorial analysis of 62 previously selected measures, as having the heaviest loadings on the factors which appeared to have the greatest predictive validity. They are described here, as are those which were rejected. The two samples did not differ significantly on these variables in the twelfth grade.

The measures of intelligence, parental socioeconomic level, peer acceptance, and other such conventional variables, are also described. The data on the two groups are briefly reported, and the comparability of the two samples is established.

CHAPTER V
THE MEASUREMENT OF EARLY VOCATIONAL BEHAVIOR

One of the major concerns of the Career Pattern Study is the assessment of vocational behavior in young adulthood. A number of criterion variables have been utilized for this purpose. Some measure career, others occupational behavior (Super, 1961, 1963). Some measures of success and satisfaction are subject self-estimates (subjective measures); others are judges' ratings or categorizations (objective measures). Some of the criteria are conventional measures; others are specifically devised to meet project requirements for measures of vocational behavior in young men.

The first three sections of this chapter deal with assessments of career behavior; the last section deals with measures of occupational behavior. The more novel measures are presented in the first two sections.

Research studies in vocational psychology have customarily used a static criterion of career success, such as salary or occupational level attained. It seems unlikely that such an approach can accurately describe the vocational progress of young men, who may be still in training or in the initial stages of getting established. In search of more suitable criteria of career success, Super (1963) tentatively identified five types of behavior employed in coping with the vocational developmental tasks of exploration and establishment encountered at ages 18 to 25. These coping behaviors were developed logically from the literature and are: floundering, trial, instrumentation, establishment, and stagnation (Super, 1963).

The problem of measuring these behaviors is primarily one of quantifying work history data which will distinguish floundering or random movement, from trial behavior in which the subject progressively eliminates less suitable jobs and moves to more suitable positions, from purposeful activity which is instrumental to getting established, and from establishment behavior. Scales and judging procedures have been devised to evaluate the behavior exhibited in a sequence of position changes.

The data were taken from the usable work histories of 130 original ninth grade subjects (of 140 survivors) and 103 original eighth grade subjects (of 114 survivors) interviewed at age 25, referred to respectively as the 9-19 and the 8-19 groups or subjects (Chapter III-2), including all of the subjects of the latter parts of this report. The subjects were interviewed and given a battery of questionnaires designed to tap relevant aspects of their education and training, military, employment, and personal histories, and to obtain data on their aspirations and self-evaluations. Each of the jobs or training moves made by the subjects for whom data were available from the date of high school leaving until about age 25 ("grade 19") was scored on seven scales and classified by judges in order to assess the wisdom of the move for the particular subject in light of his individual array of abilities, interests, goals, and socioeconomic needs.

Judged Career Behaviors

A judge was given all the material available on a subject relevant to the career move being judged. No data were given which might have revealed the outcome of the move or the remainder of the subject's career history. The judge, without knowledge of the independent scaling, classified the behavior exhibited as floundering, trial, instrumentation, establishment, or stagnation from four frames of reference: external socioeconomic, external psychological, internal socioeconomic, internal psychological (Super, 1963).

The external frame of reference focuses on the observable characteristics of the job sequence; in behavior judged as floundering, for instance, the subject gives up some of the equity established in one type of work or in one business establishment, and moves to a different job where he must start at a lower level. The internal frame of reference focuses on the subject's own perception of his career behavior. A move judged as floundering by external standards may be seen by the person making the change as a move upwards, or as permitting better use of his talents, according to private criteria of status or suitability.

Social or psychological criteria may be internal (used by the subject) or external (used by a judge). The moves that a subject makes can be judged by socioeconomic criteria such as pay, prestige, responsibility for others, and the assumption of an adult place in the community. Or, the moves can be judged in terms of their suitability to the individual's attitudes, interests, and personality. Each career move made by the Career Pattern Study subjects, was, therefore, classified four times, once for each of the four frames of reference: external socioeconomic, internal psychological, etc. All moves within military service made by subjects who were not planning to have military careers were classified as "military advancement". In the 9-19 group, 186, or 23 percent, of a total of 821 moves were military; 16 of the 130 subjects had been drafted. In the 8-19 group, 127, or 19 percent, of a total of 657 moves were military; 12 of the 103 subjects had been drafted. These non-career-oriented military moves were dropped from the analysis.

Interjudge reliability was determined by computing the percent of perfect agreement among the classifications assigned to the subjects' moves. Agreements among the three judges who classified the ninth grade data ranged from 44 percent to 67 percent on forty moves. The average percentage of perfect agreement of all three judges was 57. A different pair of judges classifying 52 moves made by eighth grade subjects were in perfect agreement 63 percent of the time. Their judgements of the final status of the subjects were in agreement 85 percent of the time. The disagreements were distributed evenly among the four frames of reference, external socioeconomic, internal psychological, etc.

Results of the analysis in external and internal "psychological" terms have been omitted in this report, because they provide no useful additional information. The distributions of judgements in external socioeconomic and psychological terms are almost identical; the correlations among the four viewpoints range from .68 to .89 with a median of .80; and the coefficients of correlation between the four viewpoints and other variables are, with the exception of two out of 28 correlation coefficients, statistically identical.

Frequency of Stabilizing and Floundering Behaviors

The distributions of external socioeconomic judgements of the career moves of the 9-19 and 8-19 subjects are shown in Table V-1. The majority of moves in both samples were classified as floundering, and over one-third were adjudged trial. The proportions of moves judged as instrumentation (10 percent) or establishing (4 percent) in the 9-19 group were reversed in the 8-19 group, resulting in a statistically significant but actually small difference between the two samples.

Table V-1
JUDGEMENTS OF 9-19 AND 8-19 CAREER MOVES
IN EXTERNAL SOCIOECONOMIC TERMS

	Number of Moves in Category				
Judgement	9-19	%	8-19	%	Total
Floundering	295	49	229	44	524
Trial	226	37	223	43	449
Instrumental	58	10	17	3	75
Establishing	23	4	46	9	69
Total	602	100	515	99	1117

$X^2 = 31.8157$, significant at the .001 level.

Table V-2 compared 9-19 and 8-19 judgements in internal socioeconomic terms. In the 9-19 data, judgements of how the subjects themselves viewed their behavior differed very little from the figures for the external view. In the 8-19 data, judging by internal criteria, however, more moves were adjudged trial than floundering, a difference between the external and internal criteria which is significant at the .001 level ($X^2 = 20.32$).

The judgements of behaviors exhibited by the subjects were dichotomized for further analysis, with floundering and stagnation grouped as "negative" or floundering behavior, and trial, instrumentation, and establishment as "positive" or stabilizing behavior. The Phi coefficients of correlation between the dichotomized judgements made from the external and from the internal frame of reference range from .80 to .89 in the ninth grade group, and from .68 to .81 in the eighth grade data.

Table V-2
JUDGEMENTS OF 9-19 AND 8-19 CAREER MOVES
IN INTERNAL SOCIOECONOMIC TERMS

	Number of Moves in Category				
Judgement	9-19	%	8-19	%	Total
Floundering	262	43	194	38	456
Trial	257	43	263	51	520
Instrumental	59	10	16	3	75
Establishing	25	4	42	8	67
Total	603	100	515	100	1118

$X^2 = 32.3482$, significant at the .001 level.

Modal Behavior and Outcome

The general status of each subject at the time of data collection (age 25 or "grade 19") was also classified by judges in terms of floundering, trial, etc., and then grouped into "positive" and "negative". The subjects were later divided into groups according to the predominating behavior each subject had exhibited over the seven year period (the modal behavior) and his final status. The results for the ninth grade data are shown in Table V-3, and, for the eighth, in Table V-4. Table V-5 provides comparison of modes and final status judgements for the eighth and ninth grade samples. There is no significant difference between the two samples, either in terms of the proportions of subjects in the various positive-negative or bimodal groupings, or in the proportions of subjects classified as showing positive or negative behavior at age 25.

In both samples, the majority of subjects were judged to be stabilizing, operating in a positive way, at age 25; over half of each sample had reached this status directly by a majority of positive moves. Of those subjects whose modal behavior had been negative or floundering, about one-half in each sample had none the less reached a positive status by age 25.

(Insert Tables V-3, V-4 and V-5 about here)

In further analyses reported in this monograph, such as intercorrelations among career criteria (Chapter VI) or between the possible predictors and correlates of vocational behavior and the criterion measures (Chapters VII and VIII), "judged career behaviors" refers to the dichotomized ("positive" or "negative", "stabilizing" or "floundering") judgements of final status at age 25.

Scaled Career Behaviors

Each job or training move made since leaving high school was scored on seven Career Development Scales designed to evaluate the wisdom of the position change and the goodness of fit resulting from the change. Interscorer reliability for the seven Career Development Scales ranged from 81 percent to 95 percent, as presented in Table V-6.

(Insert Table V-6 about here)

Table V-3
NEGATIVE-POSITIVE MODAL BEHAVIOR AND FINAL STATUS OF 9-19 SUBJECTS[a]

	Final Status[c]		
Modal Behaviors[b]	Negative	Positive	Total
Negative (Floundering)	20	23	43
Equally Negative-Positive	5	9	14
Positive (Stabilizing)	1	58	59
Total	26	90	116

$X^2 = 30.3525$, significant beyond the .001 level.

[a] Excluding 10 subjects who were in military service, 2 subjects who had moved only once, 2 subjects who were disabled.

[b] Mode based on all moves except those within military service and those occasioned by military draft.

[c] Final status in external socioeconomic terms.

Table V-4
NEGATIVE-POSITIVE MODAL BEHAVIOR AND FINAL STATUS OF 8-19 GRADE SUBJECTS[a]

Modal Behaviors[b]	Final Status[c] Negative	 Positive	Total
Negative (Floundering)	11	15	26
Equally Negative-Positive	1	14	15
Positive (Stabilizing)	5	44	49
Total	17	73	90

$X^2 = 13.1815$, significant at the .005 level.

[a] Excluding 11 subjects who were in military service, 1 subject who had moved only once, 1 subject who was disabled.

[b] Mode based on all moves except those within military service and those occasioned by military draft.

[c] Final status in external socioeconomic terms.

Table V-5
PERCENT OF 9-19 AND 8-19 SUBJECTS IN EACH CATEGORY OF NEGATIVE-POSITIVE MODAL BEHAVIOR AND FINAL STATUS

		Modal Behavior				Final Status		
Subjects	N	Neg. %	Neg. & Pos. %	Pos. %	Total %	Neg. %	Pos. %	Total %
9-19	116	37	12	51	100	22	78	100
8-19	90	29	17	54	100	19	81	100

X^2 = 3.1, not significant.

Table V-6
PERCENT PERFECT AGREEMENT AMONG SCORERS OF CAREER DEVELOPMENT SCALES

Scale	N	% Agreement
I Change in Equity	48 moves	95
II Realism of Reasons for Move	48 moves	92
IIIA Improvement in Use of Abilities	26 jobs	89
IIIB Improvement in Goodness of Fit to Interests	120 subjects	90
IV Progress Toward Goal	40 jobs	85
VA Improvement in Socioeconomic Level	92 jobs	81
VB Improvement in Educational Level	122 subjects	92

Career Development Scale I: Change in Equity. This scale examines the degree of carry-over of 1) pay rate, 2) worker benefits, and 3) experience or training from one position to the next. A job move may involve loss of tenure, seniority, or profit-sharing; a move from training may involve loss of college credits, or gain in relevant experience in one's field.

Career Development Scale II: Realism of Subject's Reasons for Move. This scale consists of eight categories of reasons for making a move, equally weighted in the total. The general categories are: 1) advancement, 2) way of life, 3) better use of talents, 4) better use of interests, 5) dissatisfactions, 6) automatic termination, 7) forced termination, and 8) knowledge of next position. The reasons in the first five categories must be suggested by the subject, and are from his point of view. The criterion of realism for these first five reasons is whether or not the dissatisfying aspects of the subject's prior job or training were remedied or lessened by the move.

Career Development Scale IIIA: Improvement in Use of Abilities. The subject's abilities were compared with the abilities required for average performance in each job or training-objective, as rated in Estimates of Worker Trait Requirements for 4,000 Jobs (U.S. Department of Labor, 1956) and the Revised Minnesota Occupational Rating Scales (Paterson, Gerkin, and Hahn, 1953). The eight abilities used for this scale were measured by the following instruments: mechanical, Bennett Mechanical Comprehension Test; musical, Seashore Tests of Musical Talent (four subtests used); artistic, Meier Art Judgement Test; intelligence, Otis Quick Scoring Test of Mental Ability; verbal, Verbal Reasoning subtest of the Differential Aptitudes Test; numerical, Numerical Reasoning subtest of the Differential Aptitudes Test; spatial, Minnesota Paper Form Board; clerical, Minnesota Clerical Test (for names and numbers). Junior-high-school test scores were used, except for mechanical and spatial abilities;

in those cases twelfth grade scores on the Bennett Mechanical Comprehension Test and the Minnesota Paper Form Board were used. All test scores were compared with appropriate grade level norms and converted to percentiles. Both positive and negative discrepancies were weighted by squaring the deviations from the occupational norms.

Career Development Scale IIIB: Improvement in Goodness of Fit in Terms of Measured Interests. Scores on the Strong Vocational Interest Blank, administered at the age-25 follow-up, were examined, and each job or training-objective held by a subject was assigned the median standard score within the group containing that type of job. The discrepancy score is the degree to which the subject's grade on the appropriate group median differs from "A" as follows: a median grade of "A" received a discrepancy score of 0; a median score of "B+" received a score of 1; a median score of "B" received a score of 2; and median scores of "B-, C+" and "C" received discrepancy scores of 3.

Career Development Scale IV: Progress Toward Goal. Goals stated by a subject at age 25 were compared with the positions he had held since leaving high school. Scores were assigned as follows: in the exact job (as defined by Shartle, 1959) received a score of 0; in specific, highly advanced, related training, or in direct line for the specific job, received a score of 1; in the occupation received a score of 2; in related training or general occupational area received a score of 3; in completely unrelated field received a score of 4.

Career Development Scale VA: Improvement in Socioeconomic Status. General socioeconomic demands and expectations, including upward mobility and maintaining family status, are reality considerations for subjects whose families are in middle and upper-level occupations. The socioeconomic level of the subject's family and his wife's family were rated using the Hamburger Revision of the Warner Occupational Rating Scale. The discrepancies between the employment level of the subject and the levels of the two families were treated separately.

Career Development Scale VB: Improvement in Educational Level. Discrepancies between the educational levels attained by subjects on the one hand, and by fathers and fathers-in-law on the other, rated on a revision of the Heyde Educational Level Scale (Heyde and LoCascio, 1963) were handled in the same way as socioeconomic discrepancies.

The means and standard deviations of scores for both 8-19 and 9-19 career moves are presented in Table V-7. There are no significant differences between the means of the two samples on the scales.

(Insert Table V-7 about here)

Initial and final discrepancies of the 8-19 and 9-19 subjects on Scales IIIA through VB (those scales that measure discrepancies) are shown in Table V-8. The results were the same for both groups; there were no significant differences between the means of the initial and final discrepancies on either Scale IIIA or IIIB (goodness of fit of job to abilities or interests), but there was a significant improvement in the rest of the discrepancies (Scales IV through VB).

It is apparent that neither sample succeeded in finding jobs or training objectives that are better fitted to their measured interests or abilities than were their first positions. On the other hand, both groups moved closer to their final goals and exceeded their parents' educational level. Also, although they had begun working at jobs one level below their fathers' socioeconomic status, they had closed this gap by age 25.

(Insert Table V-8 about here)

Additional Career Behaviors and Outcomes

Eleven additional assessments of career behavior were studied; the first four, number of moves, number of times and months unemployed, and number of months self-supporting, are career statistics; the next three are measures of

Table V-7
MEANS, STANDARD DEVIATIONS, AND RANGES OF SCORES ON CAREER DEVELOPMENT SCALES FOR CAREER MOVES MADE BY 9-19 AND 8-19 SUBJECTS

Career Development Scales	9-19 Subjects				8-19 Subjects				
	Range	N[a]	Mean	S.D.	Range	N[a]	Mean	S.D.	t
I Change in Equity	-3 to +3	832	.74	.92	-3 to +3	674	.68	1.04	1.33
II Realism of Reasons for Move	-3 to +6	832	1.77	1.36	-2 to +5	674	1.66	1.19	.5
IIIA Improvement in Use of Abilities	-31 to +22	682	.06	5.94	-28 to +25	551	-.19	5.85	1.0
IIIB Improvement in Use of Interests	-3 to +3	699	.03	.76	-3 to +3	565	.01	.75	.4
IV Progress Toward Goal	-4 to +4	692	.28	1.15	-4 to +4	549	.25	1.28	.59
VA Improvement in Socioeconomic Level	-3 to +5	624	.20	.92	-3 to +3	503	.12	.90	1.51
VB Improvement in Educational Level	0 to 1	832	.13	.34	0 to 1	674	.11	.32	.39

Note: A t at .05 = 1.645, one-tailed test.

[a] Ns for Scale IIIA, IIIB, IV, and VA do not include initial moves from high school to job or college because scores are based on progress from one job or program to the next.

Table V-8
INITIAL AND FINAL DISCREPANCIES ON CAREER DEVELOPMENT SCALES IIIA THROUGH VB FOR 9-19 AND 8-19 SUBJECTS

Comparison	Sample	Initial Discrepancy			Final Discrepancy		r	Gain	t
		N	Mean	S.D.	Mean	S.D.			
IIIA Difference between S's scores on 8 abilities and those required for average performance on job. Range: 0 (no discrepancy) to 40	9-19	123	10.24	6.90	9.94	5.84	.33	.29	.43
	8-19	104	9.19	5.85	10.13	6.26	.37	.94	1.41
IIIB Difference between S's median score in group in which his job falls and a score of "A" on Strong V.I.B. Range: 0 (median=A) to 3 (median grade equivalent to B-,C+ or C)	9-19	127	1.84	1.23	1.68	1.19	.60	.16	1.63
	8-19	105	1.66	1.28	1.61	1.28	.52	.05	.39
IV Difference between S's job or training program and the goal he stated at time of data collection. Range: 0 (in exact position desired) to 4 (completely unrelated field)	9-19	126	3.48	.79	1.99	1.43	.12	1.49	10.89*
	8-19	103	3.50	.91	2.17	1.42	.02	1.33	8.00**
VA Difference between socio-economic level of S's job and level of his father's. Range: -6 (6 levels below father) to +6 (6 levels above)	9-19	118	-1.08	1.63	-.03	1.76	.66	1.05	8.40*
	8-19	101	-.69	1.65	-.08	1.75	.70	.61	4.70**
VA Difference between socio-economic level of S's job and level of father-in-law's. Range: -6 (6 levels below) to +6 (6 levels above)	9-19	75	-1.31	1.78	-.27	1.85	.72	1.04	6.71*
	8-19	62	-.87	1.37	-.16	1.31	.65	.71	4.98**
VB Difference between S's educational level and father's. Range: -5 (5 levels below father) to +7	9-19	121	1.10	1.68	1.92	1.60	.88	.82	11.05*
	8-19	104	.98	1.39	1.69	1.37	.82	.71	8.84**
VB Difference between S's educational level and father-in-law's. Range: -5 to +5	9-19	56	.28	1.66	1.00	1.76	.92	.72	7.86*
	8-19	50	.28	1.46	.98	1.41	.84	.70	6.08**

---

*Significant beyond the .01 level, two-tailed test.

**Significant beyond the .01 level, one-tailed test.

educational achievement; the remainder are criteria of career success and satisfaction. Table V-9 presents ranges, means, and standard deviations of scores on these measures for both 9-19 and 8-19 groups.

(Insert Table V-9 about here)

Career Statistics

1. Number of moves. A subject was considered to have made a move each time he changed from one full-time military, educational, or occupational position to another. A part-time or summer vacation job was included only if it constituted the subject's sole activity at the time, and if he had no immediate plan concerning his next position. The average number of moves since leaving high school was 6, for both samples.

2. Number of times unemployed. Periods of illness or disability were excluded, when counting number of times unemployed since leaving high school. Full-time study was scored as employment. Sixty-two percent of the 103 9-19 subjects and 65 percent of the 88 8-19 subjects, had not been unemployed since leaving high school. Of those subjects who were unemployed, more than half were unemployed only once in the seven year period. The difference between the variances of the two samples was significant at the .10 level.

3. Number of months unemployed. The total number of months unemployed, excluding periods of illness or disability, was prorated to a base of 82 months for those subjects who did not graduate or leave high school with the majority of their classmates (June, 1955, for the original ninth graders, and June, 1956, for the original eighth graders). The maximum number of months unemployed was 23 and 16, for the ninth and eighth grade groups, respectively. Of those subjects who had been unemployed, more than half were out of work for three months or less, in the ninth grade group, or for four months or less, in the eighth grade group. When it did occur, then, unemployment tended to be short-term.

Table V-9
ADDITIONAL CAREER BEHAVIORS AND OUTCOMES AT AGE 25

Career Behaviors and Outcomes at Age 25	N		Range		Mean (or %)*		t (or z)*	S.D.		F
	9-19	8-19	9-19	8-19	9-19	8-19		9-19	8-19	
Career Statistics										
# Moves	103	88	1-16	1-13	6.2	6.0	NS	2.57	2.37	NS
# Times Unemployed	103	88	0-7	0-4	.68	.57	NS	1.22	.97	1.588^{**}
# Mos. Unemployed	103	88	0-23	0-16	1.62	1.46	NS	3.68	3.07	1.440^{**}
# Mos. Self-Support	103	88	0-82	7-82	58.79	59.74	NS	19.15	18.79	NS
Educational Attainment										
Educ'l Level	103	88	2-6	2-6	4.33	4.34	NS	.91	.97	NS
Educ'l Level Comp.	99	86	-1(-)+5	-2(-)+5	1.38	1.79	1.75^{**}	1.39	1.34	NS
Q.G.P.A.	55	35	2.21-18.18	1.38-15.75	9.99	7.82	2.68^{+}	4.02	3.26	NS
Career Criteria										
Career Satisf.	100	86	1-3	1-3	2.30	2.48	NS	.84	.76	NS
Career Success	99	88	1-3	1-3	2.31	2.45	NS	.69	.68	NS
Career Estab.	102	87	0-5	0-5	2.54	3.13	2.24^{++}	1.83	1.77	NS
Attain.-H.S. Goal	97	85	0-1	0-1	24%	36%	1.76^{**}	$.42^{+}$	$.48^{+}$	NS

---

*For those measures scored as either 0 or 1 ("no" or "yes"), tests of significance were computed for the difference between the proportion of subjects in each group scoring 1 ("yes"), i.e., 24% of the 9-19 subjects had attained their school-leaving occupational goal.

**Significant at the .10 level, two-tailed test.

+Significant at the .01 level, two-tailed test.

++Significant at the .05 level, two-tailed test.

4. Number of months self-supporting. The subject's income, from part- and full-time jobs, was compared with criterion figures for his size family.[1] Money earned by a subject's wife or received from his parents or from a loan fund was not counted toward "self-support". However, if a student was attending school on scholarships or assistantships, it was assumed that he had earned such awards by virtue of his scholastic achievement or other outstanding qualities, and he was considered self-supporting during the period covered by the scholarships. The total number of months self-supporting since leaving high school was prorated to a base of 82 months for those subjects who did not leave high school with most of their classmates. Subjects in both groups earned adequate incomes for an average of about five out of the seven years since leaving high school.

Educational Attainment

5. Educational Level. The highest level of education attained by the subject as of April 1, 1962, for the ninth grade group, and April 1, 1963, for the eighth grade group, was coded according to the Heyde-LoCascio Educational Rating Scale of the Career Pattern Study. The scale ranges from 1 (signifying attainment of the doctorate) through 8 (signifying the completion of some grammar school). Judges rating independently obtained 92 percent agreement in assigning levels. Differences were resolved. The distribution of educational level ratings for the ninth and eighth grade samples is shown in Table V-10. The two groups did not differ significantly.

(Insert Table V-10 about here)

6. Educational Level Comparison. The subject's educational level (see preceding variable) was compared with that of the parent whose level was

---

[1] "Modest but adequate budgets for city workers' families", Conference on Economic Progress, 1962.

Table V-10
HIGHEST EDUCATIONAL LEVEL ATTAINED AT AGE 25

Level	Ninth Grade Group		Eighth Grade Group	
	Frequency	%	Frequency	%
1 - Doctorate	-	-	-	-
2 - Master's Degree	2	02	2	02
3 - Bachelor's Degree	17	16	17	19
4 - Some College	37	36	26	30
5 - High School Graduate	39	38	35	40
6 - Some High School	8	08	8	09
7 - Grammar School Graduate	-	-	-	-
8 - Some Grammar School	-	-	-	-
Total	103	1.00	88	1.00

closest to his own. Both parental and subject educational levels were rated on the same scale. When the subject exceeded the level of the parent, a difference of one level was assigned a +1, of two levels, a +2, etc. When the subject failed to achieve the level of the parent, a difference of one level was assigned a -1, of two levels, a -2, etc.

In the ninth grade group (N=99 because of incomplete parental data), the subjects had, on the average, attained an educational level 1.38 steps above that of their parents; among 86 original eighth graders the average attained was 1.79 steps above that of their parents. This difference in means between the two samples was significant at the .10 level, two-tailed test.

7. Quality-Grade-Point Average. Scores on this variable were a function of the subject's college grades and the quality rating of the institutions he attended.

Transcripts were obtained from the registrars of the institutions. Letter grades were transformed into numbers; A became 1, B became 2, C became 3, etc. The Teachers College Admissions Staff rated each institution on a five-point scale, ranging from A to C+. These letter grades were also transformed into numbers; A became 1, A- became 2, B+ became 3, etc. When a subject attended only one institution, his numerical grade-point average was multiplied by the institutions's numerical rating. Thus, a grade-point average of B in an A- institution would earn a quality-grade-point average of 4.

Where a subject attended more than one institution, each grade-point average was multiplied by the rating for the appropriate institution, and this product was then multiplied by the number of courses in which the average was maintained. This was done for each institution, the results were summed, and divided by the total number of courses taken in all institutions, to obtain the quality-grade-point average. In this way, an average maintained over

40 courses was given proportionally more weight than one maintained over five courses.

In the original ninth grade group seen at age 25, there were 55 subjects who had attended college and for whom both grades and ratings were available. In the original eighth grade group seen at age 25, there were 35 subjects scorable on this variable. While the variances of the two samples did not differ, the difference between the means was significant at the .01 level, two-tailed test, the 8-19 subjects having earned significantly higher averages.

Career Criteria

8. Career Satisfaction, Self-estimated. The subject's response to the following questionnaire item was coded:

> Are *you* satisfied with the direction your career is taking?
>
> Please explain ______________________________.

The codes assigned were: a score of 1 for not satisfied, 2 for satisfied but with reservations, and 3 for definitely satisfied.

Mean scores were 2.30 and 2.48 for 9-19 and 8-19, respectively, and the majority of subjects in each group indicated that they were satisfied with their careers.

9. Career Success, Self-estimated. The subject's response to the following questionnaire item was coded:

> Looking back over the period since high school, do you feel that you have made (check one):
>
> _____ very good progress toward your goals?
>
> _____ some progress toward your goals?
>
> _____ little or no progress toward your goals?

Scores ranged from 1, for little or no progress, to 3, for very good progress. The mean scores for ninth and eighth grade groups were 2.31 and 2.45, respectively, indicating that most subjects felt that they had made at least some progress toward their goals.

10. Career Establishment, Self-estimated (inferred). Questionnaire and interview responses were rated for the subject's certainty of continuity of choice in regard to his present occupation. The final score on this measure was a combination of judges' ratings on three components:

a) choice of the present occupation, e.g., subjects whose present occupation was not one to which they had ever been committed were said not to have made a choice;

b) desire to continue in the present occupation, which ranged from 1) is in most desired occupation, through 4) would like to leave; and

c) self-estimated probability of continuing, which ranged from 1) expects to continue, through 2) uncertain, to 3) expects to leave.

Judges obtained the following percentages of agreement in scoring the three components: a) 95 percent, b) 69 percent, c) 84 percent. The lowest possible final score was 0, signifying either that the subject had made no choice of the present occupation, or that he no longer wished to continue and had no expectation of continuing in the present occupation. The highest possible score was 5, signifying that the subject felt the present occupation was the most desirable one for him and he fully expected to continue in it.

The average subject seemed to harbor some uncertainty about continuing in his present occupation, as indicated by mean scores of 2.54 and 3.13 at 9-19 and 8-19,respectively. The difference between the means was significant at the .05 level.

11. Attainment of School-Leaving Occupational Goal. The work histories of those subjects who were still in school in May of their senior year (1955 for ninth graders, 1956 for eighth graders) were examined to see if they subsequently entered any of the occupations mentioned in their twelfth grade interviews.

The school-leaving vocational preferences were extracted from the interviews. Judges determined whether these vocational preferences were "occupations" as defined by Shartle (1959), and then listed the occupational preferences for each subject. Interjudge agreement on 20 randomly selected cases was 95 percent. The variable was treated as a dichotomy. Subjects who entered into any of the occupations listed earned a score for attainment of their school-leaving occupational goals. Subjects who did not specify any occupational preferences, and those who did not enter into any of the occupations they specified, earned a score for non-attainment. Judges were in agreement in 96 percent of the cases scored. Differences were resolved.

In the original ninth grade group, 24 percent (N=23) of 97 subjects entered one of the occupations they specified during their senior year. Of 85 original eighth graders, 36 percent (N=31) entered one of their twelfth grade occupational preferences. This difference between proportions was significant at the .10 level.

Occupational Behaviors and Outcomes: Measurement

Ranges, means, and standard deviations for the measures described in the following section appear in Table V-11, other data in Table V-12.

(Insert Table V-11 about here)

1. Occupational Level Attained. The position held by the subject at the age-25 follow-up was rated for occupational level. When the subject was fulfilling his military obligation, or temporarily unemployed, the last position held was rated. Military career positions were rated by assigning levels to pay grades. Current college students were not included since they had not entered the labor market on a relatively permanent basis since leaving high school.

Occupational level was rated according to the Hamburger Revision of the

Table V-11
OCCUPATIONAL BEHAVIORS AND OUTCOMES AT AGE 25

Occ'l Behaviors and Outcomes at Age 25	N		Range		Mean (or %)[*]		t (or z)[*]	S.D.		F
	9-19	8-19	9-19	8-19	9-19	8-19		9-19	8-19	
Occ'l Level	91	84	1-6	1-6	4.39	4.37	NS	1.36	1.30	NS
Position Satisf.	89	79	0-1	0-1	80%	86%	NS	.40	.35	NS
Occ'l Satisf.-1	102	87	0-3	0-3	1.41	1.75	2.114[+]	1.12	1.08	NS
Occ'l Satisf.-2	86	74	0-1	0-1	76%	82%	NS	.43	.38	NS
Position Success	90	81	0-2	0-2	1.16	1.40	2.557[++]	.64	.58	NS
Occ'l Success	88	88	0-2	0-2	1.17	1.19	NS	.55	.58	NS
Utilization of Assets	96	87	0-1	0-1	76%	82%	NS	.43	.39	NS
Opportunity for Self-Expression	92	80	0-8	0-8	6.07	6.01	NS	2.06	1.90	NS

---

[*] For those measures scored as either 0 or 1 ("no" or "yes"), tests of significance were computed for the difference between the proportion of subjects in each group scoring 1 ("yes"), i.e., 80% of the 9-19 subjects indicated that they were satisfied with their position.

[+] Significant at the .05 level, two-tailed test.

[++] Significant at the .01 level, two-tailed test.

Warner Scale, referred to earlier (Chapter IV). Two judges working independently obtained 91 percent agreement in assigning levels to 86 occupations. One judge than proceeded to score the reaminder of the cases. Ratings for the ninth and eighth grade groups were distributed as shown in Table V-12.

(Insert Table V-12 about here)

2. Position Satisfaction, Self-estimated. This variable measured the subject's satisfaction with his current or last held regular position. A regular position was defined as one the subject entered as a relatively permanent member of the labor force; college students were therefore omitted. Military career subjects were included, and their satisfaction with their current assignments was coded.

The subject's response to the following questionnaire item was coded:

Were you generally satisfied with this job?

Yes. Why? ______________________________.

No. Why not? (This stem was followed by a checklist of 17 possible dissatisfactions, such as)

_____ My interests changed.

_____ I was treated unfairly.

A response indicating satisfaction was coded 1, and a response indicating dissatisfaction was coded 0. Eighty percent of the 9-19 subjects and 86 percent of the 8-19 reported satisfaction with their position. The difference between the proportion in each sample was not significant.

3. Occupational Satisfaction-1; Continuity. This measure of occupational satisfaction is based on one of the components of the Career Establishment criterion, described in the previous section. The subject's desire to continue in the present occupation was rated on a four-point scale: if he definitely wanted to leave his present occupation, he received a score of 0; if he was lukewarm or ambivalent about continuing in the occupation, he received a

Table V-12
OCCUPATIONAL LEVEL ATTAINED AT AGE 25
(Hamburger Rev., Warner Occupational Level Scale)

	Ninth Grade Group		Eighth Grade Group	
Level	Frequency	%	Frequency	%
1	1	01	5	06
2	8	09	2	02
3	15	16	8	10
4	25	28	27	32
5	14	15	26	31
6	28	31	16	19
7	0	0	0	0
Total	91	1.00	84	1.00

score of 1; if he expressed satisfaction about the present occupation, even though he did not see it as the only occupation that would satisfy him, and he definitely desired to continue in it, he received a 2; if he felt it was definitely the most desirable occupation for him, and that no other would satisfy him as much, he received a score of 3. The 8-19 mean score was higher than that at 9-19, and this difference was significant at the .05 level.

4. Occupational Satisfaction-2, Self-estimated. This variable measures the subject's satisfaction with the occupation he was in at the time of the age-25 interview. For those fulfilling military obligations, or temporarily unemployed, the last held regular position was used. Military career subjects were scored for their service occupation. Current college students were excluded.

The subject's response to the following questionnaire item was coded:

> At the time you had this job, if you could have had your choice of full-time jobs, which would you have chosen? (Check one.)
>
> _____ This job.
>
> _____ A different job, but in the same field of work.
>
> _____ A different job, and in a different field of work.

If the subject checked either of the first two alternatives, he received a code of 1, for satisfaction with the occupation. Checking the third alternative earned him a code of 0, for dissatisfaction. Seventy-six percent of the 9-19 group, and 82 percent of the 8-19 group reported satisfaction with their current occupation. There was no significant difference between the two groups on this variable.

5. Position Success, Self-estimated. This variable measured self-estimated success in the last held regular position. For military career men, their success with current assignments was coded. Current college students were not included.

This measure was based on questionnaire responses. Each subject was

(3)

required to rate how well he performed in each of seven aspects of the position: performing the duties of the job, carrying the load of work required by the job, adapting to physical conditions on the job, getting along with people in charge, getting along with fellow workers, getting along with the company's way of doing things, getting promotions and salary increases. A five-point scale was used: poorly, not well, average, fairly well, and very well. An average was taken of the ratings for each position. The averages distributed themselves amongst the top three points on the scale: average, fairly well, and very well. These were considered to mean average success, fairly successful, and very successful, and were coded 0, 1, and 2, respectively.

Eighty-six percent of the 9-19 group, and 95 percent of the 8-19 group estimated that they were either fairly successful or very successful in their current or last held position. The difference between the actual means of the two samples was significant at the .01 level, with the 8-19 subjects rating themselves as more successful.

6. Occupational Success, Self-estimated. The subject's response to the following questionnaire item was coded:

> When you compare yourself with people about your same age who are in your field do you feel you have been (check one):
>
> _____ less successful in your work than they have been?
>
> _____ about as successful in your work as they have been?
>
> _____ more successful in your work than they have been?

The first alternative was coded 0 for below average success, the second was coded 1 for average success, and the third was coded 2 for above average success. Current college students, who had never become regular members of the labor market pool, were not scored on this variable. Means and standard deviations for the ninth and eighth grade groups were practically identical. In both groups, 91 percent of the subjects felt that they were at least as successful in their work as others the same age in the same field.

7. Perception of Utilization of Assets. The subject's responses to the following questionnaire items were coded:

1) What do you think you have to offer an employer? What abilities, personality traits, special skills would make you look like a good bet to employers?

2) Have you ever found any jobs that did really use the things you have to offer (which you listed above)?

_____ Yes _____ No

If Yes, please give an example ______________________________.
If No, what do you feel are the reasons? __________________.

3) Do you think that you will find in the future a job or jobs that will make use of the particular things you have to offer?

_____ Yes _____ No

If Yes, do you know or have any idea what this job or jobs might be? Please describe: _____________________________________.

This variable was treated as a dichotomy. The subject received a score of 1 if a) he stated that he had something to offer an employer and he felt that his present job utilized those assets, or b) he was in training, he stated that he had something to offer an employer and that he expected to find jobs that would utilize those assets. The subject received a score of 0 if a) he stated that he had nothing to offer an employer, or b) he stated that he had something to offer an employer but either his present job did not utilize his assets or (if a student) he did not expect future jobs to utilize them.

Seventy-six percent of the 9-19 group, and 82 percent of the 8-19 group, received a score for utilization of their assets, either in their present positions, or, if in training, in their expected positions. The difference between proportions was not significant.

8. Perception of Opportunities for Self-expression. Questionnaire responses were coded and the codes summed to obtain a score on this variable.

The question required each subject to rate whether opportunities to use initiative and judgement, knowledge and experience, to express oneself and to share interests were, in the current position, great, average, or limited. These responses were coded, 2, 1, and 0, respectively. A different question required students to rate whether opportunities to use one's abilities in the current training program were great, average, or limited, and whether interest in the training program was great, average, or limited (coded 2, 1, and 0, respectively). For students the sum of the codes was doubled, since only two items were involved, whereas there were four for employed subjects.

Final scores ranged from 0 (little opportunity for self-expression) to 8 (great opportunity for self-expression). Mean scores for both groups were 6.07 and 6.01, at 9-19 and 8-19, and variances did not differ significantly.

Position Success, Employer-rated

In addition to self-report data, a more objective criterion of position success was sought. Employer evaluations of on-the-job performance were obtained by a concern making credit and personnel selection investigations. The names of the subjects, together with their self-reported work histories during four years preceding the interview, were turned over to the firm. Field representatives made contact with employers either by telephone or by means of personal visits. The investigation took place after work history data had been obtained from the subjects by a Career Pattern Study staff member, and the subjects did not know that this independent check would be made.

Investigators were asked to emphasize the following topics, most of which were part of their standard procedure: job title and duties; hours worked per week; amount and type of training required by the employer; competence of employee; salary increases, promotions, and changes in job title or duties; getting along with fellow workers, and with supervisors; whether the employee had been, or would be, recommended for his next job; whether the employee was someone the employer would like to retain; the employee's outstanding achievement and/or failure on the job. Dates of employment, earnings, and reasons for separation were also included in the standard personnel selection report.

In the original ninth grade sample, a total of 115 subjects was investigated. Omitted were those in military service, in full-time study, self-employed, and employed by relatives. The total number of positions reported upon was 262.

A review of the reports revealed that there was not a significant amount of variation in employer evaluations. When all usable position reports were categorized by employer ratings, about six percent fell in the upper range, with the subject perceived as an outstanding employee; about 88 percent fell in the middle range, with the employer indicating general satisfaction, and about six percent fell in the lower range, with the employer indicating general dissatisfaction with the employee.

The nature of the personnel investigation and the standardized language of the agents may have permitted littler inter- or intraindividual differentiation in terms of employer satisfaction, although the nature of the questions and the conditions in which they were used makes this seem unlikely. In view of their distribution, it was decided not to use the employer rating as a measure of position success. The reports did prove useful, however, for corroboration of the subject's report of wages, length and dates of employment, and reasons for separation, etc.

The Validity of Work Histories

Since many of the career and occupational criteria used in this study are drawn from self-reports given in questionnaires and interviews, the question validity of such data, that is, of the veracity of the self-reports, is especially relevant. A study by Weiss, et al (1961), of the validity of work histories obtained in interviews by University of Minnesota investigators, had concluded that the use of the interview-obtained data without further validation was unwarranted. This study was replicated with Career Pattern Study methods and data (Chatel, 1964). The self-reports were compared with the employer reports obtained by personnel investigators.

The work history data obtained from the Career Pattern Study subjects, unlike those obtained from the subjects of the Minnesota study, did agree highly with those obtained for the same persons from their present and recent employers, and might therefore be called valid. In the thirteen strictly comparable Minnesota comparisons, the median percentage of agreement between subject and employer reports was 71; for the same Career Pattern Study comparisons, the median percentage of agreement was 81.5. This figure was raised to 88 percent when, instead of comparing subject- and employer-reported job titles and duties by D.O.T. codes, a more thorough and substantive comparison was made of the duties involved in the specific position.

It is apparently unwise to generalize from one study of the validity of interview material to another; the validity of work history material can be questionable, as in the Minnesota study, or quite high, as in the Career Pattern Study replication with refinements.

Summary

Viewed at age 25, the original eighth and ninth grade samples had comparable career histories. The majority of subjects in each group were judged to be functioning in a positive way, stabilizing their careers, at age 25. Objectively, they had not made any progress in finding jobs better suited to their measured abilities or interests since leaving high school, but they felt that their self-perceived assets were being utilized and that there was opportunity for self-expression in their current positions. Most felt that they were successful in, and satisfied with, their current positions. More than 90 percent felt that they were at least as successful in their work as others their age in the same field. Although more than 80 percent expressed satisfaction with their present occupation, the average subject was not completely certain he would continue, or that he wanted to continue, in it. Most subjects expressed satisfaction with the direction their careers were taking, and felt they had made some progress toward their goals. Since leaving high school, less than 40 percent had actually entered one of the occupations specified while in high school, but in general the groups had moved closer to their objectives as expressed at age 25.

The average subject had changed positions six times in seven years, and had been self-supporting for an average of five years. One-third of the subjects had at some time been unemployed, but generally for less than four months. More than one-half of the subjects continued their education beyond high school, although only about one-fifth had actually received a bachelor's degree. The subjects began working one level below their parents' occupational levels, but had closed the gap by age 25. The two samples did not differ significantly with regard to the majority of measures of vocational behavior at age 25; there were, however, several career criteria on which the 8-19 group scored significantly higher than the 9-19.

When judged solely by external socioeconomic criteria, more of the 8-19 career moves were adjudged establishing than instrumental, while the reverse was true at 9-19. Although this difference was statistically significant (at the .001 level), it should be kept in mind that only a small percentage (12 percent at 8-19 and 14 percent at 9-19) of the total number of career moves made since leaving high school was involved.

In the 8-19 data itself, career moves were judged differently from the internal versus the external point of view. By internal socioeconomic criteria (how judges thought the subjects would rate their own behavior), more career moves were adjudged trial than floundering. By external socioeconomic criteria (how judges themselves viewed the subjects' behavior) more moves were judged floundering than trial. (This difference was significant at the .001 level.) When only final status judgements (positive-negative or stabilizing-floundering status at age 25) were considered, however, there were no significant differences between the two frames of reference: the proportions of positive or negative behavior, or the proportions judged to be functioning positively (stabilizing) at age 25.

At noted previously, it is primarily these dichotomized final status judgements which are used in correlational analysis with other career criteria (Chapter VI), and with the possible predictors and correlates of vocational behavior (intercorrelations reported in Chapters VII and VIII).

The replication sample (8-19 subjects) saw themselves as more desirous of continuing, and more likely to continue, in their present occupations, than did the exploratory sample (9-19 subjects, differences significant at the .05 level, two-tailed test), and they rated themselves as more successful in their current position (significant at the .01 level). When compared to the 9-19 subjects, they had obtained significantly higher quality-grade-point averages in college (significant at the .01 level); tended, on the average, to have made more progress in surpassing their parents' educational levels (significant at the .10 level); and more of them had, at some point, attained their high-school-leaving occupational goals (significant at the .10 level).

At this point it is pertinent to ask whether any of the observed differences in vocational behavior after high-school leaving were a function of differences between the two groups noted in Chapter IV. At the junior-high-school level, the ninth grade group contained more Catholics (and less Protestants), and more freshmen taking Regents curricula. Both samples had about the same proportion graduating with a Regents diploma at the twelfth grade level. The eighth grade group was somewhat better adjusted emotionally at age 25. On neither empirical nor theoretical grounds would one expect the religious difference to be related to other age-25 differences between the groups.

CHAPTER VI
THE INTERRELATIONSHIPS OF VOCATIONAL BEHAVIORS

The preceding chapter presented the variables employed to assess vocational behavior in young adulthood. This chapter deals with the relationships among these variables. These relationships throw light on questions such as: Do the independent judgements of floundering, trial, instrumentation, establishment, and stagnation reflect the more objective assessments of career moves as scored on the Career Development Scales? What is the relationship of these career criteria to more conventional success criteria, such as occupational level? How are the various measures of career success and satisfaction related? Do subjects successfully distinguish between position, occupation, and career?

The results are presented in the following sections:

A. Judged Career Behaviors

B. Scaled Career Behaviors
   1. Intercorrelations
   2. Correlations with Judged Career Behaviors

C. Additional Career Behaviors

D. Occupational Behaviors and Outcomes
   1. Intercorrelations
   2. Career vs. Occupational Measures

E. Meaningful Criteria
   Variables in A and B vs. C and D

Judged Career Behaviors

As described in Chapter V, the correlations between the dichotomized judgements of stabilizing or floundering behavior made from the external and internal frames of reference are quite high. There is very little discrepancy, therefore, between the way the judge perceives the behavior reported, and the way the subjects perceive their own behavior. This conclusion involves the assumption that the subjects were willing and able to reveal their true feelings about each career move. It should be noted also that some criterion contamination is possible, although the judges worked only with data relevant to each move and could not be aware of the outcomes of the move at the time they were judging it. Furthermore, the judges were required to distinguish between internal and external criteria. It is quite possible, however, that the judgement made from one frame of reference could affect the judgement made from another whenever specific information about a move was scant.

The results of determing a mode of positive (stabilizing) or negative (floundering) behavior for each subject were presented in Chapter V. In all the results presented, both training and job changes are treated as "career moves". The original eighth grade subjects (this sample only) were also divided into two groups on the basis of presence or absence of training moves in their career records. Of the 107 subjects, 45 had had post-high-school training (non-military), while the remaining 62 had not. Table VI-1 reveals that the group of subjects whose moves were most often given a positive (stabilizing) classification is composed equally of those with and those without advanced schooling. However, the proportion of subjects with advanced schooling in this "positive mode" group is significantly greater than the proportion in the group with negative (floundering) modes.

The IQ's of the 8-19 subjects with negative modal behavior were compared on the basis of their status at age 25. The mean IQ of the 11 subjects whose behavior remained negative was six points lower than the mean IQ of the 15 subjects who were judged to have corrected earlier negative behavior, but this difference in IQ is not statistically significant, possibly because of the small number of cases involved.

(Insert Table VI-1 about here)

Table VI-1
PROPORTIONS OF SUBJECTS WITH AND WITHOUT ADVANCED SCHOOLING IN POSITIVE-NEGATIVE MODAL GROUPS
(8-19 SUBJECTS)

Modal Behavior	Post-High-School Training Number of Subjects With	Without	Combined
Positive (Stabilizing)	25	24	49
Negative (Floundering)	5	21	26
Total	30	45	75

$z = 2.43$; $P_1 > P_2$ at the .01 level of significance.

Scaled Career Behaviors

Interrelationships of Career Development Scales

In order to compare the standing of subjects on one scale with that on another, the raw scores were transformed into T scores and an average progress score was obtained for each subject on each scale (the sum of a subject's T scores on a scale divided by the number of moves he made). The correlations among these average progress scores is shown in Table VI-2 for the original ninth and eighth grade samples.

As the tables show, maintaining or increasing equity, having a number of realistic reasons for moving, and attaining higher levels of education with position changes are interrelated characteristics of movement.

In the 9-19 sample, Scale IIIA, improvement in use of abilities in each position moved to, was not positively related to any other variable. In the 8-19 group, on the other hand, this scale behaved quite differently: none of the negative relationships appeared, and IIIA was positively correlated with Scale VB, improvement in educational level ($r = .25$). In fact, only one of the correlations in the 9-19 data involving either Scale IIIA or IIIB was supported in replication with the 8-19 sample, and that was the positive r between use of interests and change in equity.

(Insert Table VI-2 about here)

Relationships between Judgements and Career Development Scales

The score assigned on each scale to each move in the time period was compared to the judge's classification of the move by analysis of variance and the Scheffé technique for testing differences between means. The results are given in Tables VI-3 through VI-9 for the 9-19 data, and VI-10 through VI-16 for the 8-19. The f ratios obtained for both samples are significant in all comparisons except those involving Scales IIIA and IIIB. In each

Table VI-2
INTERCORRELATIONS OF CAREER DEVELOPMENT SCALES FOR THE ORIGINAL NINTH AND EIGHTH GRADE GROUPS
(N Varies from 113 to 129 at 9-19; N Varies from 99 to 106 at 8-19)

	Scale II		Scale IIIA		Scale IIIB		Scale IV		Scale VA		Scale VB	
Scales	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19
Scale I Change in Equity	.41*	.53*	-.$\underline{\underline{27}}$	-.08	.$\underline{\underline{23}}$	.$\underline{21}$	.16	.$\underline{22}$	.$\underline{\underline{29}}$	.$\underline{\underline{28}}$	.$\underline{\underline{26}}$	.$\underline{\underline{24}}$
Scale II Realism of Reasons for Move			.01	.12	-.05	.38*	.12	.02	.06	.$\underline{19}$	.50*	.54*
Scale IIIA Improvement in Use of Abilities					-.36*	.06	.01	.02	-.$\underline{21}$	-.02	-.05	.$\underline{\underline{25}}$
Scale IIIB Improvement in Goodness of Fit to Interests							.36*	.12	.$\underline{\underline{28}}$	.06	.04	.$\underline{\underline{30}}$
Scale IV Progress Toward Goal									.60*	.$\underline{\underline{26}}$	.14	.$\underline{17}$
Scale VA Improvement in Socioeconomic Level											.16	-.05
Scale V3 Improvement in Educational Level												

— Significant at the .05 level, two-tailed test for 9-19, one-tailed for 8-19.
= Significant at the .01 level, two-tailed test for 9-19, one-tailed for 8-19.
* Significant at the .001 level, two-tailed test for 9-19, one-tailed for 8-19.

comparison, moves which were classified as "floundering" earned significantly lower scores than those classified as "trial". In other words, scores reflecting progress toward goal, toward higher educational and socioeconomic levels, increased equity, and increased realism, differentiate trial moves from floundering.

(Insert Tables VI-3 to VI-16 about here)

Modal Behavior and Outcomes Related to Career Development Scales

The point biserial correlations between average progress scores on the scales and dichotomized judgements of stabilizing-floundering at final (age 25) status are presented in Table VI-17 for the 9-19 and for the 8-19 group. It is apparent that subjects who were judged by external criteria to be functioning in a positive way at age 25 had higher average scores on Scales I, II, IV, and VA.

(Insert Table VI-17 about here)

Table VI-18 provides a closer look at the subjects whose moves were most often classified as floundering. In both 8-19 and 9-19 samples, there is a positive correlation between final status and scores on Scale I. Maintaining or increasing equity per move, even while making little or no progress on other dimensions, tends to distinguish the subjects who improve predominantly negative behavior from those who do not.

(Insert Table VI-18 about here)

Summary of Results of Judging and Scaling Procedures

Analysis of the Career Development Scales has revealed three related characteristics of positive vocational movement: increasing occupational equity, having realistic reasons for moving, and attaining higher levels of education per move.

The group as a whole did not appear to be moving toward jobs more

Table VI-3
COMPARISON OF JUDGEMENTS OF MOVES AND SCORES ON CAREER DEVELOPMENT SCALE I, EQUITY (ORIGINAL NINTH GRADE SAMPLE)

		Scores on Scale I		
Judgement[a]	No. Moves	Mean	S.D.	
Floundering	295	.35	.898	F = 17.812*
Trial	226	.76	.914	
Instrumentation	58	.72	.874	
Establishment	23	1.47	.790	

Comparison of Means[b]

Contrast	Difference
F - T	-.41*
F - I	-.37 NS
F - E	-1.12*
T - I	.04 NS
T - E	-.71*
I - E	-.75 NS

---

*Significant at the .01 level.

[a] Judgement by external socioeconomic criteria.

[b] Scheffé technique for comparison of means.

Table VI-4

COMPARISON OF JUDGEMENTS OF MOVES AND SCORES ON CAREER DEVELOPMENT SCALE II, REASONS (ORIGINAL NINTH GRADE SAMPLE)

		Scores on Scale II		
Judgement[a]	No. Moves	Mean	S.D.	
Floundering	295	.82	1.294	F = 98.127*
Trial	226	2.33	1.324	
Instrumentation	58	3.00	1.154	
Establishment	23	3.39	.838	

Comparison of Means[b]

Contrast	Difference
F - T	-1.51*
F - I	-2.18*
F - E	-2.57*
T - I	-.67*
T - E	-1.06*
I - E	-.39 NS

---

*Significant at the .01 level.

[a] Judgement by external socioeconomic criteria.

[b] Scheffé technique for comparison of means.

Table VI-5
COMPARISON OF JUDGEMENTS OF MOVES AND SCORES ON CAREER DEVELOPMENT SCALE IIIA, ABILITIES (ORIGINAL NINTH GRADE SAMPLE)

Judgement[a]	No. Moves	Scores on Scale IIIA Mean	 S.D.	
Floundering	236	-.20	6.664	
Trial	159	.25	7.836	F =.327 NS
Instrumentation	45	.04	4.389	
Establishment	20	1.20	6.779	

---

[a] Judgement by external psychological criteria.

Table VI-6
COMPARISON OF JUDGEMENTS OF MOVES AND SCORES ON CAREER DEVELOPMENT SCALE IIIB, INTERESTS (ORIGINAL NINTH GRADE SAMPLE)

		Scores on Scale IIIB		
Judgement[a]	No. Moves	Mean	S.D.	
Floundering	241	-.01	.851	*F* = .569 NS
Trial	163	.11	1.065	
Instrumentation	47	.02	.793	
Establishment	21	.00	0.000	

---

[a] Judgement by external psychological criteria.

Table VI-7
COMPARISON OF JUDGEMENTS OF MOVES AND SCORES ON CAREER DEVELOPMENT SCALE IV, GOAL
(ORIGINAL NINTH GRADE SAMPLE)

Judgement[a]	No. Moves	Scores on Scale IV		
		Mean	S.D.	
Floundering	230	-.06	1.175	
Trial	164	.73	1.366	F = 17.770*
Instrumentation	53	.79	.947	
Establishment	21	.90	.943	

Comparison of Means[b]

Contrast	Difference
F - T	-.79*
F - I	-.85*
F - E	-.96*
T - I	-.06 NS
T - E	-.17 NS
I - E	-.11 NS

---

*Significant at the .01 level.

[a] Judgement by external socioeconomic criteria.

[b] Scheffé technique for comparison of means.

Table VI-8
COMPARISON OF JUDGEMENTS OF MOVES AND SCORES ON CAREER DEVELOPMENT SCALE VA, SOCIOECONOMIC
(ORIGINAL NINTH GRADE SAMPLE)

Judgement[a]	No. Moves	Scores on Scale VA Mean	 S.D.	
Floundering	198	-.09	.949	
Trial	142	.60	1.154	F = 14.193*
Instrumentation	37	.43	1.014	
Establishment	18	.72	.958	

Comparison of Means[b]

Contrast	Difference
F - T	-.69*
F - I	-.52 NS
F - E	-.81 NS
T - I	.17 NS
T - E	-.12 NS
I - E	-.29 NS

---

*Significant at the .01 level.

[a] Judgement by external socioeconomic terms.

[b] Scheffé technique for comparison of means.

Table VI-9
COMPARISON OF JUDGEMENTS OF MOVES AND SCORES ON CAREER DEVELOPMENT SCALE VB, EDUCATIONAL (ORIGINAL NINTH GRADE SAMPLE)

Judgement[a]	No. Moves	Scores on Scale VB Mean	S.D.	
Floundering	295	.07	.275	
Trial	226	.23	.427	F = 10.903*
Instrumentation	58	.27	.488	
Establishment	23	.13	.344	

Comparison of Means[b]

Contrast	Difference
F - T	-.16*
F - I	-.20*
F - E	-.06 NS
T - I	-.04 NS
T - E	.10 NS
I - E	.14 NS

---

*Significant at the .01 level.

[a] Judgement by external socioeconomic terms.

[b] Scheffé technique for comparison of means.

Table VI-10
COMPARISON OF JUDGEMENTS OF MOVES AND SCORES ON CAREER DEVELOPMENT SCALE I, EQUITY (ORIGINAL EIGHTH GRADE SAMPLE)

Judgement[a]	No. Moves	Scores on Scale I Mean	Scores on Scale I S.D.	
Floundering	229	.09	1.004	
Trial	223	.76	1.000	$\underline{F} = 30.403^*$
Instrumentation	17	.52	.943	
Establishment	46	1.39	.855	

Comparison of Means[b]

Contrast	Difference
F - T	$-.67^*$
F - I	-.43 NS
F - E	-1.30^*
T - I	.24 NS
T - E	$-.63^*$
I - E	-.87 NS

---

*Significant at the .01 level.

[a] Judgement by external socioeconomic criteria.

[b] Scheffé technique for comparison of means.

Table VI-11
COMPARISON OF JUDGEMENTS OF MOVES AND SCORES ON CAREER DEVELOPMENT SCALE II, REASONS
(ORIGINAL EIGHTH GRADE SAMPLE)

		Scores on Scale II	
Judgement[a]	No. Moves	Mean	S.D.
Floundering	229	.85	1.136
Trial	223	2.00	1.233
Instrumentation	17	3.00	.790
Establishment	46	2.56	.910

$\underline{F} = 59.736^{*}$

Comparison of Means[b]

Contrast	Difference
F - T	-1.15*
F - I	-2.15*
F - E	-1.71*
T - I	-1.00*
T - E	-.56 NS
I - E	.44 NS

---

*Significant at the .01 level.

[a] Judgement by external socioeconomic criteria.

[b] Scheffé technique for comparison of means.

Table VI-12
COMPARISON OF JUDGEMENTS OF MOVES AND SCORES ON CAREER DEVELOPMENT SCALE IIIA, ABILITIES (ORIGINAL EIGHTH GRADE SAMPLE)

Judgement[a]	No. Moves	Scores on Scale IIIA Mean	 S.D.	
Floundering	159	-.99	7.463	
Trial	185	.33	6.237	F = 1.269 NS
Instrumentation	12	-.59	6.487	
Establishment	41	.43	4.889	

---

[a] Judgement by external psychological criteria.

Table VI-13
COMPARISON OF JUDGEMENTS OF MOVES AND SCORES ON CAREER DEVELOPMENT SCALE IIIB, INTERESTS (ORIGINAL EIGHTH GRADE SAMPLE)

Judgement[a]	No. Moves	Scores on Scale IIIB Mean	S.D.	
Floundering	171	-.08	.887	
Trial	186	.12	.903	
Instrumentation	12	-.25	.866	*F* = 2.161 NS
Establishment	41	.07	.345	

---

[a] Judgement by external psychological criteria.

Table VI-14
COMPARISON OF JUDGEMENTS OF MOVES AND SCORES ON CAREER DEVELOPMENT SCALE IV, GOAL (ORIGINAL EIGHTH GRADE SAMPLE)

Judgement[a]	No. Moves	Scores on Scale IV Mean	 S.D.	
Floundering	180	.00	1.370	
Trial	162	.69	1.348	F = 7.881*
Instrumentation	12	.58	.514	
Establishment	45	.57	1.514	

Comparison of Means[b]

Contrast	Difference
F - T	-.69*
F - I	-.58 NS
F - E	-.57 NS
T - I	.11 NS
T - E	.12 NS
I - E	.01 NS

---

*Significant at the .01 level.

[a] Judgement by external socioeconomic criteria.

[b] Scheffé technique for comparison of means.

Table VI-15
COMPARISON OF JUDGEMENTS OF MOVES AND SCORES ON CAREER DEVELOPMENT SCALE VA, SOCIOECONOMIC
(ORIGINAL EIGHTH GRADE SAMPLE)

Judgement[a]	No. Moves	Scores on Scale VA Mean	S.D.	
Floundering	169	-.24	.859	
Trial	130	.43	.939	F = 23.201*
Instrumentation	9	.22	.440	
Establishment	43	.81	.823	

Comparison of Means[b]

Contrast	Difference
F - T	-.67*
F - I	-.46 NS
F - E	-1.05*
T - I	.21 NS
T - E	-.38 NS
I - E	-.59 NS

---

*Significant at the .01 level.

[a] Judgement by external socioeconomic criteria.

[b] Scheffé technique for comparison of means.

Table VI-16

COMPARISON OF JUDGEMENTS OF MOVES AND SCORES ON CAREER DEVELOPMENT SCALE VB, EDUCATIONAL (ORIGINAL EIGHTH GRADE SAMPLE)

Judgement[a]	No. Moves	Scores on Scale VB Mean	 S.D.	
Floundering	229	.03	.172	
Trial	223	.22	.420	$F = 16.557^*$
Instrumentation	17	.35	.492	
Establishment	46	.10	.314	

Comparison of Means[b]

Contrast	Difference
F - T	-.19*
F - I	-.32*
F - E	-.07 NS
T - I	-.13 NS
T - E	.12 NS
I - E	.25 NS

---

*Significant at the .01 level.

[a] Judgement by external socioeconomic criteria.

[b] Scheffé technique for comparison of means.

Table VI-17
CORRELATIONS[a] BETWEEN CAREER DEVELOPMENT SCALES AND DICHOTOMIZED JUDGEMENTS OF STABILIZING-FLOUNDERING AT FINAL (AGE 25) STATUS OF NINTH AND EIGHTH GRADE SUBJECTS
(N=116 at 9-19; N=90 at 8-19)

Career Development[b] Scales	Final Status Judgements External Criteria Socioeconomic 9-19	8-19	Psychological 9-19	8-19
I Change in Equity	$.\underline{22}$	$.\underline{\underline{37}}$	$.\underline{21}$	$.\underline{23}$
II Reasons for Move	$.\underline{\underline{30}}$	$.\underline{\underline{28}}$	$.\underline{\underline{30}}$	.12
IIIA Use of Abilities	-.02	.05	-.01	-.13
IIIB Use of Interests	.12	.05	.12	-.08
IV Progress toward Goal	$.\underline{\underline{39}}$	$.\underline{19}$	$.\underline{\underline{40}}$	$.\underline{20}$
VA Socioeconomic Improvement	$.\underline{\underline{26}}$	$.\underline{\underline{32}}$	$.\underline{\underline{27}}$	$.\underline{\underline{35}}$
VB Educational Improvement	.10	$.\underline{18}$	.10	.08
Total 7-Scale Score	$.\underline{\underline{41}}$	$.\underline{\underline{35}}$	$.\underline{\underline{41}}$	$.\underline{18}$

— Significant at the .05 level, two-tailed test for 9-19, one-tailed for 8-19.

═ Significant at the .01 level, two-tailed test for 9-19, one-tailed for 8-19.

[a] Point-biserial coefficients.

[b] Average progress score for 7 year period.

Table VI-18

CORRELATIONS[a] BETWEEN SCORES ON CAREER DEVELOPMENT SCALES AND DICHOTOMIZED JUDGEMENTS OF STABILIZING-FLOUNDERING AT FINAL (AGE 25) STATUS FOR NINTH AND EIGHTH GRADE SUBJECTS WITH NEGATIVE (FLOUNDERING) MODAL BEHAVIOR

(N=43 at 9-19; N=26 at 8-19)

	Career Development Scales													
	Scale I		Scale II		Scale IIIA		Scale IIIB		Scale IV		Scale VA		Scale VB	
Judgement[b]	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19
Final Status[c]	.34	.40	.16	.17	.07	-.04	-.02	.18	.56	.03	.25	.29	-.15	.08

— Significant at the .01 level, two-tailed test for 9-19, one-tailed for 8-19.

= Significant at the .05 level, two-tailed test for 9-19, one-tailed for 8-19.

[a] Point-biserial coefficients.

[b] External socioeconomic terms.

[c] 0 = 20 9th grade, 11 8th grade subjects with negative final status.
1 = 23 9th grade, 15 8th grade subjects with positive final status.

appropriate to their abilities or measured interests.

Analysis of judgements of behavior exhibited in career moves made by subjects in this time period has indicated that approximately half of the moves were floundering, over one-third were trial, and the remainder were instrumental or establishing.

When behaviors were dichotomized into negative and positive types, a little over half of the subjects had shown predominantly positive or stabilizing behavior, about one-third negative or floundering behavior, and the remainder had shown as much negative as positive behavior. Evaluation of the subject's career status at the time of data collection, age 25, indicates that the majority of them were functioning in a positive way, that is, were engaging in trial, instrumental, or even establishing behavior.

Scores on five of the seven scales devised to measure vocational behavior were positively related to independent judgements of the behavior. The numerical measures which discriminate between vocational floundering and trial were shown to be: change in equity, number of realistic reasons for moving, progress toward goal, and improvement in socioeconomic and educational levels.

(Insert Table VI-19 about here)

Additional Career Behaviors and Outcomes

The additional career behaviors and outcomes (described in Chapter V), can be divided into two groups: objective (job-getting and holding) and subjective (satisfaction and success). Among the objective measures, the following relationships can be abstracted from Table VI-19.

Measure	9-19 Sample r's $p > .05$	8-19 Sample r's $p > .05$
Number of Moves	+Times Unemployed	+Times Unemployed +Months Unemployed
	+Months Self-Support -Quality-Grade-Point Average	
Number of Times Unemployed	+Months Unemployed +Months Self-Support	+Months Unemployed
Number of Months Unemployed		-Attainment of High School Goal
Number of Months Self-Support		-Educational Level Comparison
Educational Level	+Educational Level Comparison +Quality-Grade-Point Average	+Educational Level Comparison
Quality-Grade-Point Average		+Attainment of High School Goal

Turning next to the subjective measures, the subject's self-estimates of career establishment, success, and satisfaction, we find that these measures are positively and highly intercorrelated, the correlations ranging from .56 to .77 for the 9-19 group, and from .44 to .55 for the 8-19 group, all significant at the .01 level.

The objective career measures are related to these subjective measures in the following ways: number of moves correlated negatively with career establishment and career success; subjects who had moved often in the years since leaving high school were those who had either made no choice of their present occupation, or, if they had made a choice at some time no longer wanted to remain in that occupation; the subjects who moved often tended to see themselves as having made little or no progress toward their goals since high school (in the 9-19 group only, subjects who moved often expressed dissatisfaction with the way their careers were heading).

Table VI-19
INTERRELATIONSHIPS AMONG ADDITIONAL CAREER BEHAVIORS AT AGE 25
(9-19 AND 8-19 GROUPS)

Additional Career Behaviors	Objective														Subjective					
	# Times Unemp.		# Months Unemp.		# Months Self-Supp.		Educ'l Level		Educ'l Level Comp.		Q.G.P.A.		Attain. H.S. Goal		Career Estab.		Career Success		Career Satisf.	
	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19
Objective																				
# Moves	.20	.38	.11	.30	.23	.08	-.10	-.15	-.02	.00	-.34	-.05	-.16	-.03	-.30	-.32	-.21	-.23	-.24	-.16
# Times Unemp.			.94	.86	.17	.02	.00	-.06	.10	-.04	.01	-.18	.04	-.17	-.07	-.31	-.13	-.20	-.03	.00
# Months Unemp.					.11	-.03	-.01	-.05	.11	-.05	.06	-.08	.04	-.20	-.03	-.35	-.08	-.15	.00	.04
# Months Self-Supp.							.05	-.26*	-.03	.02	-.13	.02	.14	.13	.09	.19	.01	-.03	.08	.10
Educ'l Level									.29	.29	.55	.28	.00	-.14	.11	.06	.28	.20	.17	.13
Educ'l Level Comp.											-.14	.09	-.04	-.08	-.02	.06	-.14	.14	.01	.07
Q.G.P.A.													.15	.32	.35	.20	.35	.26	.31	.15
Attainment H.S. Goal															.17	.14	.29	-.03	.18	-.18
Subjective																				
Career Estab.																	.56	.54	.77	.44
Career Succ.																			.58	.55
Career Satisf.																				

—Significant at the .05 level, one-tailed test, except for intercorrelations with # moves.

═Significant at the .01 level, one-tailed test, except for intercorrelations with # moves.

*Significant had a two-tailed test not been precluded by contrary hypothesis.

For the 9-19 group, there were no significant relationships between the subjective career evaluations and unemployment. In the 8-19 group, however, the two measures of unemployment behaved much like job movement in relation to career judgements; they were negatively related to career establishment, and one of them was negatively related to career success. Self-support during the years since high school was not related to the subjective career measures for the 9-19 group, and was related positively to career establishment in the 8-19 sample.

Educational level attained by age 25 was related to career success. Subjects who had attained higher levels of education tended to see themselves as having made progress toward their goals since leaving high school. Subjects who did well in college and/or attended institutions with good academic ratings, in the ninth grade group, rated themselves as successful (having made progress), satisfied, and established (likely to continue) in their careers. These relationships did not appear in the 8-19 group. It should be recalled (Chapter V) that the two groups differed significantly on this variable, the 8-19 group having the higher mean quality-grade-point average.

For the 9-19 sample, subjects who at one time after high school entered any of the occupations specified during senior year tended to see themselves, at age 25, as successful and satisfied in their careers. These relationships did not appear for the 8-19 sample. Significantly more of the original eighth graders had, at one time, attained one of their high school occupational goals.

Summary

Frequent job and training movement does appear to reflect repeated occupational dissatisfaction. Subjects' evaluations of their careers, however, are apparently not related to unemployment or continuous financial self-support (the latter variable, it should be recalled, is closely associated with college attendance, since many students depend on outside financing).

Self-estimated career success is related to subjects' own attained educational levels, but not to comparisons between their levels and those of their fathers.

Relationships between quality-grade-point averages, attainment of high school leaving goals, and positive career evaluations are not clearly demonstrated in both samples of subjects.

The only findings of interrelationships among the objective career behavior variables which appeared in both samples were positive correlations between number of moves and number of times unemployed, and between subject's educational level and the comparison of his level with that of his parents, both of which are artifacts due to the nature of the measures.

The subjective measures presented in this section (the self-estimates of career establishment, success, and satisfaction) are positively and highly intercorrelated, again because of measurement artifacts.

(Insert Table VI-20 about here)

Occupational Behaviors and Outcomes

Intercorrelations

Table VI-20 reveals that the majority of the objective and subjective measures of occupational behaviors and outcomes (as described in Chapter V) are positively intercorrelated, some only slightly, some moderately.

Summary

Subjects in both samples who attained higher occupational levels expressed more satisfaction with their present occupation, felt that they were successful in their fields, and that their assets were utilized in their jobs.

All measures of satisfaction (position, occupation, utilization of assets and opportunity for self-expression) were positively intercorrelated in both

Table VI-20
INTERRELATIONSHIPS AMONG OCCUPATIONAL BEHAVIORS AND OUTCOMES AT AGE 25
(9-19 AND 8-19 GROUPS)

Occupational Behaviors	Position Success		Occ'l Success		Position Satisf.		Occ'l Satisf.-1		Occ'l Satisf.-2		Util. of Assets		Opportunity Self-Expression	
	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19
Objective Occ'l Level	.04	.04	.26	.20	.22	.08	.20	.34	.40	.32	.41	.19	.46	.12
Subjective Position Success			.19	.28	.19	.22	.18	.30	.19	.13	.20	.22	.14	.39
Occ'l Success					.19	.26	.33	.34	.32	.23	.33	.16	.23	.33
Position Satisf.							.34	.39	.46	.37	.48	.27	.58	.31
Occ'l Satisf.-1 (continuity)									.55	.52	.59	.69	.48	.49
Occ'l Satisf.-2											.57	.44	.71	.30
Util. of Assets													.58	.34
Oppor. for Self-Expression														

—Significant at the .05 level, one-tailed test.

═Significant at the .01 level, one-tailed test.

samples.

The success measures (position and occupation) were positively intercorrelated with all other subjective measures except for three measures of satisfaction.

(Insert Table VI-21 about here)

Career vs. Occupational Measures

Table VI-21 presents the intercorrelations between the additional career behaviors and occupational behaviors.

Among the objective career measures, number of moves was negatively correlated with two occupational measures. Subjects who moved often tended to express uncertainty about continuing in their present occupation, and felt that their assets were not being utilized. (In the 8-19 group only, these same subjects tended to be unemployed most often and for longer periods of time, and to work at lower level jobs.)

Subjects who were most self-supporting after leaving high school tended to feel that their assets were being utilized in their present positions. In the 9-19 group only, subjects who were self-supporting also tended to feel that they had made progress toward their goals since leaving high school.

Educational level was highly and positively correlated with occupational level at age 25. Having surpassed the parents' educational level was also related to attaining higher occupational levels, but only in the 8-19 group. Higher quality-grade-point averages, based both upon grades and upon ratings of the institution, were related to expressed occupational satisfaction at age 25.

Subjects who regarded themselves as established in their careers tended to have achieved higher level occupations, and to see themselves as successful and satisfied in their positions and occupations. Subjects who expressed

Table VI-21

INTERRELATIONSHIPS AMONG THE ADDITIONAL CAREER BEHAVIORS AND THE OCCUPATIONAL BEHAVIORS AND OUTCOMES AT AGE 25

(9-19 AND 8-19 GROUPS)

Additional Career Behaviors	Occ'l Level		Position Success		Occ'l Success		Position Satisf.		Occ'l Satisf.-1		Occ'l Satisf.-2		Util. of Assets		Oppor. Self-Expression	
	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19
Objective																
# Moves	-.01	-.18	-.16	-.08	-.18	-.14	-.06	-.05	-.28	-.34	.00	.03	-.23	-.32	-.01	-.08
# Times Unemp.	.00	-.20	.10	-.03	-.13	-.11	-.02	.08	-.10	-.35	.01	-.04	.01	-.27	.09	-.02
# Months Unemp.	-.02	-.17	.12	.01	-.07	-.05	-.01	.12	-.08	-.37	.05	-.12	.06	-.36	.09	-.08
# Months Self-Supp.	.16	-.15	.10	.18	.21	.13	.13	.07	.09	.13	.16	.08	.20	.20	.14	-.04
Educ'l Level	.60	.70	-.16	.10	.08	.04	-.12	.00	.22	.17	.17	.35	.14	.09	.22	.06
Educ'l Level Comp.	.13	.25	-.17	.07	-.05	.05	-.10	.10	.02	.07	-.03	.04	-.14	.02	-.15	.18
Q.G.P.A.	.42	.33	-.23	-.38*	.15	-.02	.18	-.08	.38	.32	.21	.01	.44	.15	.40	-.09
Attainment H.S. Goal	.03	.23	.29	-.06	.11	.05	.13	-.13	.20	.18	.17	-.15	.11	.11	.21	-.04
Subjective																
Career Estab.	.23	.26	.19	.32	.36	.36	.39	.43	.94	.93	.62	.52	.65	.74	.47	.48
Career Succ.	.39	.15	.20	.32	.50	.41	.24	.32	.55	.54	.43	.42	.45	.41	.43	.42
Career Satisf.	.30	.14	.15	.36	.37	.47	.47	.32	.72	.45	.67	.42	.65	.26	.55	.41

— Significant at the .05 level, one-tailed test, except for intercorrelations with # moves.
═ Significant at the .01 level, one-tailed test, except for intercorrelations with # moves.

*Significant had a two-tailed test not been precluded by contrary hypothesis.

satisfaction with their careers, and saw themselves as successful in them, also expressed satisfaction with and saw themselves as successful in their positions and occupations.

That subjects were reasonably successful in distinguishing between job, occupation, and career is indicated by correlations of .19, .20, and .50 between position and occupation, position and career, and occupational and career success, respectively.

The distinction was also made between success and satisfaction, as indicated by correlations of .19 and .32 between job success and satisfaction, and occupational success and satisfaction, respectively. Comparable figures for the original eighth grade group are .28, .32, .41, .22 and .37.

Summary

Subjects who felt their assets were utilized in their jobs tended to have made the least number of moves and to have been continually self-supporting.

Subjects attaining higher occupational levels had more years of advanced schooling, higher quality-grade-point averages, and planned to continue in their present occupations. Subjects with high-grade-point averages also expressed more satisfaction with their present fields.

In general, subjects' ratings of their success and satisfaction with their careers parallel their ratings of their occupations and positions.

The Meaningful Criteria

Tables VI-22 and VI-23 present the remaining intercorrelations among the measures described in the preceding sections, objective and subjective measures of additional career behaviors and of occupational behaviors, on the one hand, and the scaled and judged career behaviors on the other hand.

(Insert Tables VI-22 and VI-23 about here)

Table VI-22
INTERCORRELATIONS AMONG CAREER AND OCCUPATIONAL BEHAVIORS FOR THE 9-19 SAMPLE

Additional Career Behaviors	Scaled Career Behaviors								Judged Career Behaviors Final Status			
	I-Equity	II-Realism	IIIA-Abil.	IIIB-Int.	IV-Goal	VA-Socio.	VB-Educ'l	Total CD	Ext. Socio.	Ext. Psych.	Int. Socio.	Int. Psych.
Objective												
# Moves	-37	-35	00	-06	-45	-36	-47	-61	-12	-10	01	-06
# Times Unemploy.	-21	-38	00	10	02	06	-02	-15	01	02	-02	-08
# Mos. Unemploy.	-18	-34	01	09	04	07	02	-10	04	05	03	-06
# Mos. Self-Supp.	-10	00	02	-08	03	08	-12	-08	04	12	05	16
Educ'l Level	15	44	-10	02	06	18	74	43	20	16	20	20
Educ'l Level Comp.	08	05	-04	-03	03	13	23	12	-07	-09	-01	-04
Q.G.P.A.	00	45	-07	-03	22	03	37	30	38	32	24	18
Attain. H.S. Goal	16	30	04	-04	21	01	12	24	15	17	16	14
Subjective												
Career Estab.	15	38	06	12	37	17	11	41	53	55	46	52
Career Success	32	60	-05	16	29	20	24	52	56	53	55	56
Career Satisf.	16	41	09	00	33	24	14	39	62	64	56	64
Occ'l Behaviors												
Objective												
Occ'l Level	34	36	-08	12	24	50	39	52	46	49	43	53
Subjective												
Position Success	14	00	02	15	10	06	-06	12	07	12	05	15
Occ'l Success	25	27	12	05	15	19	08	31	27	32	31	37
Position Satisf.	06	18	11	-15	18	07	-14	09	47	47	42	44
Occ'l Satisf.-1	11	44	06	11	32	11	19	41	51	51	44	49
Occ'l Satisf.-2	15	38	10	-04	23	29	06	32	57	61	61	66
Util. of Assets	13	32	15	07	24	23	12	36	53	60	36	51
Oppor. Self-Exp.	04	37	08	02	24	18	14	32	56	60	60	65

— Significant at the .05 level, one-tailed test, except for intercorrelations with # moves.

═ Significant at the .01 level, one-tailed test, except for intercorrelations with # moves.

Table VI-23
INTERCORRELATIONS AMONG CAREER AND OCCUPATIONAL BEHAVIORS FOR THE 8-19 SAMPLE

Additional Career Behaviors	Scaled Career Behaviors								Judged Career Behaviors Final Status			
	I-Equity	II-Realism	IIIA-Abil.	IIIB-Int.	IV-Goal	VA-Socio.	VB-Educ'l	Total CD	Ext. Socio.	Ext. Psych.	Int Socio.	Int. Psych.
Objective												
# Moves	-48	-27	-03	-20	-66	-21	-41	-54	-23	-18	-08	-19
# Times Unemploy.	-36	-30	-01	-07	-11	-08	-15	-26	-19	-19	-03	-08
# Mos. Unemploy.	-36	-33	-02	-12	-03	-11	-14	-28	-30	-18	-12	-13
# Mos. Self-Supp.	15	-10	-03	03	03	-09	-33*	-08	15	07	07	10
Educ'l Level	12	50	10	18	-09	-06	80	43	22	20	11	14
Educ'l Level Comp.	06	19	-06	26	-04	20	15	22	16	20	-03	03
Q.G.P.A.	15	45	-02	20	08	-12	24	32	04	05	05	12
Attain. H.S. Goal	30	23	-07	00	-11	10	-16	08	-02	-02	-12	-07
Subjective												
Career Estab.	37	29	02	11	33	16	14	38	58	46	54	58
Career Success	19	35	00	-03	17	16	21	29	40	40	44	49
Career Satisf.	11	18	-03	-01	22	06	12	19	40	43	47	58
Occ'l Behaviors												
Objective												
Occ'l Level	29	50	07	18	-02	06	68	45	28	30	20	21
Subjective												
Position Success	15	04	-07	-18	-01	04	00	01	19	29	12	35
Occ'l Success	18	26	00	01	08	14	03	21	36	32	36	33
Position Satisf.	02	04	11	12	26	20	02	22	30	35	41	50
Occ'l Satisf.-1	36	36	14	09	28	18	24	43	56	49	50	62
Occ'l Satisf.-2	14	26	06	16	03	10	26	28	38	23	41	37
Util. of Assets	35	28	08	13	23	10	19	34	56	35	43	47
Oppor. Self-Exp.	-01	06	00	06	16	12	00	12	47	25	31	33

— Significant at the .05 level, one-tailed test, except for intercorrelations with # moves.

= Significant at the .01 level, one-tailed test, except for intercorrelations with # moves.

* Significant had a two-tailed test not been precluded by contrary hypothesis.

Additional Career Behaviors

Objective. In both groups, subjects making the largest number of job or training moves tend to have made the lowest scores on all the scales except IIIA and IIIB. And in both samples, subjects having the greatest loss in equity per move and the least realistic reasons for moving tend to have been unemployed more often and for longer periods of time.

The subjects who attained higher levels of education tended to have more realistic reasons for making career moves and to have been judged to be functioning in a positive way at age 25.

When the subjects' educational levels were compared with their parents' in the 9-19 sample, no significant relationships appeared, except for the understandable relationship with the scale measuring increasing educational level; in the 8-19 results, however, a number of relationships appeared. As previously noted (Chapter V), the mean scores for the original eighth grade group was significantly higher on this variable than the mean for the original ninth.

Subjects in both groups who obtained higher quality-grade-point averages in college tended to have more realistic reasons for career moves. The 9-19 college group had significantly lower quality-grade-point averages than did the 8-19.

Subjects who at one time entered one of the occupations they had specified in high school tended also to make higher scores on Scale II, Realism of Reasons for Changing Positions. (As noted in Chapter V, more of the 8-19 than 9-19 subjects entered such occupations.)

Subjective. Self-estimates of career establishment were positively related in both samples to number of reasons, progress toward goal, and judgements of their career behavior at age 25. For the 8-19 group, who in general were more certain of continuing in their occupations than were the ninth graders, high scores on career establishment were related to maintaining or increasing equity (Scale I).

Subjects in both samples who felt they had made some progress toward their goals tended to have maintained or increased equity, had more realistic reasons, and increased educational level for each move, and their career behavior at age 25 tended to be judged as positive.

Subjects in both samples, who expressed satisfaction with the direction their careers were taking, were more likely to have made more progress toward the goals they stated at age 25.

Occupational Behaviors

Objective. Subjects in both samples who attained higher occupational levels tended also to have increased their equity and educational level per move and to have given more realistic reasons for their moves. Their status at age 25 also tended to be given a positive judgement (stabilizing).

Subjective. Self-estimated position success is not significantly related to any scaled or judged career behavior in either sample.

The remaining occupational behaviors are positively related to Scale II, number of realistic reasons for career moves, with the exception of position satisfaction and opportunity for self-expression. Position satisfaction and both measures of occupational satisfaction were related to progress toward contemporary goal.

All measures of occupational behavior, except position success, were positively related to the judgements of career behavior at age 25.

Summary

Subjects in both samples who achieved higher grades in college or other post-high-school study tended to have had a greater number of realistic reasons for moving, to rate themselves as established and successful in their careers, and had at some point entered one of the occupations to which they had aspired in high school.

On the whole, subjects who had more realistic reasons for changing jobs or training objectives tended to have reached, by age 25, higher level occupations, in which they felt satisfied and successful. Maintaining or increasing the amount of pay, benefits and utilization of experience from one position to another (Equity) is related, in both samples, to self-estimated career success and occupational level attained.

Self-ratings of satisfaction and success in occupations and careers were borne out in the objective ratings made by independent judges.

Summary

This chapter has examined the relationships among various measures of vocational behavior. A few of the more salient findings are discussed below.

Frequent job and training changes (an average of six per person) in the seven-year period have apparently not brought subjects closer to their goals, not have they led to stabilization in an occupation in which they wish to continue although more than three-fourths have begun to try to stabilize. The subjects who did move frequently were from a wide range of educational and socioeconomic strata.

While level of education and occupation are highly correlated, they relate differently to occupational and career measures. Neither educational nor socioeconomic level is related to feelings of success or satisfaction with one's job. Over 80 percent of the subjects felt both successful at and satisfied with their present positions. The level of the occupation is a contributing factor in feelings of success and satisfaction, while level of education is not significantly related in both samples to any subjective occupational measure. Perhaps these differences can be explained in part by the supposition that subjects who have attained higher occupational levels without comparable educational levels would naturally tend to be satisfied and to consider themselves successful in their occupations, having "succeeded" in spite of lack of higher education. The subject who has spent years in training, on the other hand, is less easily pleased.

It is apparent that floundering is by no means an isolated phenomenon: approximately one-half of the job and training moves that a typical group of men make during the seven years after high school can be characterized as floundering. About one-third of young men can be classified as flounderers in this time period, and another fifteen percent flounder as often as they use more appropriate behavior. If moves are evaluated quantitatively, scores reflecting progress toward goal, toward higher educational and socioeconomic levels, and increased equity and realism, differentiate trial moves from floundering.

Three-fourths of the subjects were judged to be coping positively with the task of stabilizing at age 25. The probability of career success at age 25 is considerably better if one has employed positive types of behavior since leaving high school. However, even predominantly unwise behavior throughout the early years is not necessarily immutable; half of the flounderers in this study were judged to be manifesting more appropriate types of behavior at age 25.

CHAPTER VII

VOCATIONAL MATURITY AS A PREDICTOR OF EARLY ADULT VOCATIONAL BEHAVIOR

This chapter presents the results of relating measures of personal characteristics and experiences, in junior and senior high school, to measures derived from later career behavior observed or reported during the years after leaving high school and until about the age of 25. The social, psychological, and educational variables studied when the two groups of subjects were in the eighth and ninth grade, and later when they were in the twelfth grade, have been described in Chapter IV. The measures of young adult vocational behavior have been described in Chapter V. Here, and in Chapter VIII, the relationships between what may be viewed as antecedent or predictor variables, on the one hand, and consequent or criterion variables, on the other, are examined.

Predictor characteristics or behaviors, it is important to note, are of two types: 1) especially devised measures presumed to assess vocational maturity, and 2) standard measures of psychological, social, and educational variables such as intelligence and social status. Of the former, only those which previous analysis (Heyde and Jordaan, in process) had shown to have heavy loadings on factors which appeared to have predictor validity were included in the prediction study and are the subject of this chapter. Thus, as pointed out in Chapter IV, although a number of different kinds of occupational information were assessed in the first set of vocational maturity measures, only three kinds of information concerning the preferred occupation, and only four types of information concerning all the occupations a boy was considering, had substantial loadings of factors deemed to reflect vocational maturity. These were: needed high-school background, training and education, and supply and demand for the first preference, and the same, plus knowledge of working hours, for all occupations of interest. Only these were included in the present study of the predictive validity of vocational maturity measures.

All proposed criterion measures are included in this analysis, although some of them are deemed, as pointed out in Chapter VI, to be superior in conceptual adequacy and in construct validity (as shown by their intercorrelations) to others. The predictor-criterion correlations are reported and discussed according to the criterion type. First, the relationships between high school data and eight career development scales are presented. Second, the prediction of the types of vocational coping behavior is considered (first categorized as floundering, trial, stagnation, instrumentation, or establishment, using internal and external psychological and socioeconomic criteria, and then dichotomized as stabilizing or floundering, also referred to as positive or negative, career behavior). Third, the prediction of other career statistics describing the employment history and the educational attainment from high school to age 25 is attempted. Finally, the relationships between vocational maturity predictor variables and various occupational, as contrasted with career, behaviors are considered.

The design of the study, involving the collection of predictor and criterion data on two groups of subjects at several different stages of development, has made possible the reporting of several studies as one. These are: 1) the setting up of *a priori* hypotheses concerning some variables on theoretical or existing empirical grounds and the testing of these hypotheses on the first group studied, 2) the use of the first group for the exploratory study of relationships between predictor and criterion variables whose relationships could not be hypothesized before, 3) the testing of hypotheses derived from this exploratory work with the first group in work with the second group, 4) the retesting of *a priori* hypotheses confirmed in the first group with data from the second group, and 5) the further testing of these confirmed hypotheses at an earlier age level in one of the same groups of subjects.

The original ninth grade subjects, coded as 9-9 when first studied in ninth grade, as 9-12 when studied in the twelfth grade, and as 9-19 when studied in what would have been the nineteenth grade had such existed at about age 25, serve as the subjects for steps 1 and 2. Thus *a priori* hypothesis testing and exploratory work is performed with predictor data from the 9-12 subjects (the original ninth grade group studied when in twelfth grade) and with criterion data from the 9-19 level (the original ninth grade subjects at about age 25).

The original eighth graders, coded as 8-8 when first studied, supply the 8-12 data as twelfth graders for steps 3 and 4, that is for the replication of results previously obtained with the 9-12 data. *A priori* hypotheses confirmed in the first group, and empirically-based hypotheses derived from exploratory findings with that same group, can thus be verified with a second group.

Finally, the original ninth graders supply data from the ninth grade (9-9) for step 5, for a final retesting of hypotheses confirmed by or derived from the analysis of twelfth grade data obtained from either the same group (9-12) or from the second group (8-12). In these instances a new type of hypothesis is being tested, to the effect that characteristics which, assessed in the twelfth grade and predicting behavior at age 25, also have predictive validity even when assessed earlier, in the ninth grade.

Vocational Maturity and Scaled Career Behaviors

This section reports the relationships between factorially valid vocational maturity measures, obtained in grades 9 and 12, and a series of scales designed to reflect several different aspects of career development during the post-high-school years. The vocational maturity measures are described in Chapter IV, the career development scales in Chapter V.

Occupational Information

Table VII-1 reports the correlations between the construct-valid occupational information (VM) scores and the several scales of career development.

The first two columns for each scale report the correlations for the subjects when predictor data were obtained in twelfth grade, column 1 for the original ninth grade group and column 2 for the original eighth grade group as twelfth graders, while the third column reports correlations for the original ninth grade group studied when in ninth grade. In all three columns the criterion data are, of course, those obtained at age 25. The design of this study treats the first column as exploratory or, when previous theory or data justify it, as hypothesis-testing (plus or minus signs _above_ the coefficients indicate both the fact and the direction of _a priori_ hypothesis). Similarly, the second and third columns respectively permit replication in a second group of similar subjects at the same age, and in the same group at an earlier age. Correlations which are significant at the .01 level are underlined twice (boldface type), those which are significant at the .05 level one (italics). The appearance of two or more significant correlations in any set of three columns indicates replication of significant findings.

(Insert Table VII-1 about here)

Preferred Occupation. _Knowledge of High School Background Needed_ (the first row of figures in Table VII-1) for entry into the preferred occupation when in grade 12 (the first two columns) or grade 9 (the third column) is _unrelated_ to any of the scaled career behaviors, in the 9-19 group, and only to Scale VB (_Improvement in Educational Status_) in the 8-19 group. No directional hypotheses were set up for testing.

Information Concerning Training and Education possessed as a twelfth grader, however, _is_ significantly correlated with Scales II, VB, and the Total CD Scale in both the exploratory and validation analyses, and Scales II and VB are predicted even from ninth grade. The first two relationships are closer, the possession of occupational information in ninth grade being less relevant to later career development than in the twelfth, and the total score apparently having been made less valid by the inclusion of invalid scales. The

Table VII-1
OCCUPATIONAL INFORMATION IN HIGH SCHOOL AND SCALED CAREER BEHAVIORS AT AGE 25, EXPLORATORY AND HYPOTHESIS-TESTING GROUPS*

Scaled Career Behaviors at Age 25	I-Equity			II-Reasons			IIIA Abilities			IIIB Interests			IV-Goal			VA Socioeconomic			VB Educational			Total Career Development		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Occ'l Info. in Grade	12	12	9	12	12	9	12	12	9	12	12	9	12	12	9	12	12	9	12	12	9	12	12	9
Pref. Occ.																								
H.S. Background	02	-03	-12	15	20	09	04	-04	-09	-01	11	-06	14	-04	-05	16	-03	-10	14	**31**	04	17	15	-08
Training & Education	12	*22*	05	**32**	**37**	*20*	03	-07	-16	-08	14	-01	11	-12	10	21	-*23*	11	**36**	**40**	*20*	**30**	*22*	14
Supply & Demand	+ 07	+ 00	+ -14	+ **30**	+ 01	+ 14	-08	-08	09	07	-01	-12	+ 10	+ -01	+ 03	03	05	-18	13	-01	02	19	-01	-03
Range of Info.-All Occ's.																								
H.S. Background	03	04	-03	**26**	19	13	04	-17	-10	-03	07	04	09	-04	02	13	02	-08	18	**30**	09	*20*	13	02
Training & Education	12	*24*	04	**35**	**36**	**30**	07	-08	-13	-10	12	-07	09	-11	08	21	-11	06	**30**	**44**	*23*	**29**	*25*	16
Hours	13	-08	-04	*22*	-01	04	-04	03	00	-04	10	-12	09	11	-10	14	-06	-04	16	10	14	*20*	07	-03
Supply & Demand	08	02	-09	**28**	00	04	-11	-11	09	03	00	-12	06	01	07	03	10	-10	-01	00	-07	13	01	-04

---

*N for Group 9-9, 9-12, 9-19 (the original 9th Graders in 9th, 12th, or 19th grades) varies from 91 to 103.
N for Group 8-12, 8-19 (the original 8th Graders) varies from 82 to 88.
± above the correlation coefficient indicates the direction of a hypothesized relationship; confirmed or not by the coefficient below it. No entry indicates no hypothesis or no relationship hypothesized. Correlations significant at the .01 level are underlined twice (boldface type); those significant at the .05 level once (italics).
Two-tailed tests apply, unless *a priori* directional hypotheses were formulated as described in text.
Significant findings in the 9-19 sample result in use of the one-tailed test in the other samples.

correlations of about .35 with Realism of Reasons for Changing Positions, and Improvement in Educational Status during the post-high-school years, in the original ninth grade group as twelfth graders, are replicated in the original eighth grade group as twelfth graders. No a priori hypotheses had been set up.

Knowledge of Supply and Demand when in grade 12 is related as hypothesized only to Scale II, Realism of Reasons for Changing Positions, in the original ninth grade (validation group). This relationship is, however, not supported by the data on the original eighth grade or cross-validation group, nor at the ninth grade level. This type of information is related to neither Equity Change, nor Goal Attainment, other scales for which positive relationships were hypothesized.

Range of Occupational Information. Information Concerning High School Background for all liked occupations when in grade 12 is, like that for the one preferred occupation, unrelated to scaled career behavior during the post-high-school years in both the exploratory and replication groups. It is significantly related to Scale II and to Total Career Development in the 9-19 group only, and to Scale VB in the 8-19 group only, without replication. No a priori hypotheses had been set up.

Information Concerning Training and Education as a twelfth grade student is significantly related to Scales II, Realism of Reasons for Changing Positions and VB, Improvement of Educational Status, and to the Total CD Scale, in the exploratory original ninth grade and also in the validation 8-19 group. In addition, the 8-19 subjects show a significant but unreplicated relationship for Scale I, Equity Change. Scales II and VB are predicted even in the ninth grade. The correlations in question range from .23 to .44. No a priori hypotheses had been set up.

Information as to Hours of Work when in twelfth grade is significantly related to Scale II and to the Total CD Scale in the exploratory group, but unrelated to any scales in the 8-19 validation group. No hypotheses were tested.

Supply and Demand information in grade 12, related to Scale II (Realism of Reasons) in the 9-19 group, is unrelated to any scale in the 8-19 group, and has no predictive validity in grade 9 (no a priori hypotheses).

(Insert Table VII-2 about here)

Planning and Implementation

Only two the the Planning and Implementation measures having yielded substantial VM factor loadings, these two were treated in the prediction study (Table VII-2). These predictor measures were developed only for the original ninth grade group, hence cross-validation for the 8-19 group was not possible.

Specificity of Planning. Planning to Qualify for the preferred occupation when in both ninth and twelfth grades, correlated significantly, as hypothesized, with Scale II (Realism of Reasons for Changing), but with no other scale for which relationships were hypothesized.

Implementation in Activities. Implementation of the Vocational Preference through participation in relevant activities was unrelated to any of the Scaled Career Behaviors (no relationships were hypothesized).

(Insert Table VII-3 about here)

Inventoried Interests

Two measures of inventoried interests derived from Strong's Vocational Interest Blank were used as predictor variables. They summarize the stage of development of the subject's interests, and are the Interest Maturity Scale and a measure of primary interest patterns. Results appear in Table VII-3.

Interest Maturity. Interest Maturity scores in grade 12 are significantly correlated with Scale VB in both twelfth grade groups, in the ninth grade (using the two-tailed test) with the Total CD Scale only in the 9-19 group, and with Scale II only in the 8-19 group. It is therefore seen to be clearly related to Improvement in Educational Status in the post-school years, although no relationships had been hypothesized.

Primary Interest Patterns. Primary Interest Patterns, that is, having a clear-cut pattern of vocational interests in grade 12, is not related to any of the Scaled Career Behaviors in the first group, but does show a significant relationship to Scale VB (Educational Improvement) in only the replication group. Positive relationships had been hypothesized between Primary Interest Patterns

Table VII-2

PLANNING AND IMPLEMENTATION IN HIGH SCHOOL IN RELATION TO SCALED CAREER BEHAVIORS AT AGE 25, EXPLORATORY AND HYPOTHESIS-TESTING GROUPS*

Scaled Career Behaviors at Age 25	I-Equity		II-Reasons		IIIA Abilities		IIIB Interests		IV-Goal		VA Socioecon.		VB Educational		Total Career Development	
Planning & Implementing in Grade	12	9	12	9	12	9	12	9	12	9	12	9	12	9	12	9
	+	+	+	+			+	+	+	+	+	+	+	+		
Planning to Qual.	14	04	25	27	01	-13	00	10	-02	07	11	03	12	15	16	16
Implementing in Relevant Activities	-02	08	00	10	03	04	05	02	-03	05	07	07	00	05	02	12

---

*N for Group 9-9, 9-12, 9-19 (the original 9th Graders in 9th, 12th, or 19th grades) varies from 91 to 103.

See Table VII-1 for explanatory notes.

Table VII-3
INVENTORIED INTEREST IN HIGH SCHOOL AND SCALED CAREER BEHAVIORS AT AGE 25, EXPLORATORY AND HYPOTHESIS-TESTING GROUPS*

Scaled Career Behaviors at Age 25	I-Equity			II-Reasons			IIIA Abilities			IIIB Interests			IV-Goal			VA Socioeconomic			VB Educational			Total Career Development		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Interest Inventoried in Grade	12	12	9	12	12	9	12	12	9	12	12	9	12	12	9	12	12	9	12	12	9	12	12	9
Interest Maturity (SVIB)	08	10	-10	13	27	09	-08	04	-25	09	15	10	09	-17	01	18	-14	03	26	45	18	22	18	02
	+	+	+	+	+	+				+	+	+												
Primary Interest Patterns	-03	-02	-13	04	14	-11	-06	16	-16	-02	-02	11	02	10	-11	06	-12	-09	07	24	08	03	11	-10

---

*N for Group 9-9, 9-12, 9-19 (the original 9th Graders in 9th, 12th, or 19th grades) varies from 91 to 103.
N for Group 8-12, 8-19 (the original 8th Graders) varies from 74 to 80.
See Table VII-1 for explanatory notes.

and three scales, Equity Change, Realism of Reasons, and Goal Attainment.

(Insert Table VII-4 about here)

Nature of Work Experience

The nature of the subjects' in-school work experience, that is, of part-time and vacation jobs, were assessed for self-vs.-other employment, and for the auspices (such as parents, parental friends, stranger, etc.) under which they worked. Table VII-4 reports the findings.

Self-Employment. Working for Oneself even while a high school student, as opposed to working for an employer, was correlated significantly with one of the empirically unsatisfactory Scaled Career Behaviors, Scale IIIA, Agreement of Preference and Abilities, but this was not hypothesized a priori and not confirmed in replication with the 8-19 group, and was not related in any hypothesized way to any of the scales in the 9-19 group. Negative relationships with Scales I and IIIB were the opposite of those hypothesized and do not make theoretical sense; the expected positive relationship with Scale IIIB, Agreement of Preference and Interests, appears only in the 8-19 group, together with equally unsupported correlations with Scales IV, Goal Attainment and VA, Improvement in Socioeconomic Status.

Auspices of high school employment correlates significantly only with Scale IIIA, Abilities, and only in the exploratory group (no hypothesis), but this is again the empirically unsatisfactory criterion. No hypothesized relationships were found. Work experience in ninth grade may perhaps be negatively related to post-high-school educational advancement.

Wisdom of Vocational Preferences

The measures of wisdom or realism of vocational preferences, all of them objective and limited in the specific data which they take into account, included wisdom in terms of 1) accessibility, and 2) ability, and take into account either a) the first vocational preference or b) all of the occupations in which the subject expressed some interest when in the twelfth or ninth grade. Results are given in Table VII-5.

Table VII-4
NATURE OF WORK EXPERIENCE IN HIGH SCHOOL AND SCALED CAREER BEHAVIORS AT AGE 25, EXPLORATORY AND HYPOTHESIS-TESTING GROUPS*

Scaled Career Behaviors at Age 25	I-Equity			II-Reasons			IIIA Abilities			IIIB Interests			IV-Goal			VA Socioeconomic			VB Educational			Total Career Development		
Nature of Wk. Exper. through Grade	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9
	+	+	+	+	+	+				+	+	+	+	+	+									
Self-Employment	-24	-06	-11	03	-05	-01	22	01	-04	-21	21	06	-09	26	09	-03	23	-03	-12	-01	-20	-12	14	-06
	+	+	+	+	+	+				+	+	+	+	+	+									
Auspices	-15	-09	-05	-01	-15	03	35	06	-10	-29	07	04	-04	-04	05	-02	06	-01	-11	-13	-21	-07	-08	-05

---

*N for Group 9-9, 9-12, 9-19 (the original 9th Graders in 9th, 12th, or 19th grades) varies from 91 to 103.
N for Group 8-12, 8-19 (the original 8th Graders) varies from 82 to 88.
See Table VII-1 for explanatory notes.

(Insert Table VII-5 about here)

Socioeconomic Accessibility. The Preferred Occupation, judged accessible for its proximity to the parental occupation, is very slightly related only to Scale IV, Goal Attainment, and only in the 9-19 group, without replication in the second group of subjects or in the ninth grade. No other *a priori* hypotheses received any support. When All Occupational Preferences are taken into account there are no significant relationships in either group.

Actual and Required Ability. Agreement between Actual and Required Ability for the Preferred Occupation is unrelated to any of the Scaled Career Behaviors, hypothesized or not, in either the first or the second high school group or at the junior high school level.

Agreement between Actual and Required Ability for All Occupational Preferences is significantly correlated, as hypothesized, with Scale II, Realism of Reasons for Changing, in both the 9-19 and 8-19 groups. Scale I, Equity Change, is also related in the hypothesized way but only in the second group. No scales are predicted in the ninth grade. The hypothesized relationship with Scale IV, Goal Attainment, was not found.

Summary: The Prediction of Scaled Career Behavior

The above-reported findings on the prediction of scaled career behavior during the post-high-school years, by means of a variety of hypothesized measures of vocational maturity based on high school data accumulated through grade 12, lead to the conclusion that:

1. Occupational information possessed in grade 12, and even in grade 9, is a good predictor of certain career behaviors at age 25, but only when defined specifically as information concerning training and education requirements for the then preferred occupation and for all occupations then of special interest.

2. Planning to qualify for the preferred occupation in grade 12, and even in grade 9, is related, as expected, to realism of reasons for changing positions during the post-high-school years, but not to other scaled career

Table VII-5
WISDOM OF VOCATIONAL PREFERENCES IN HIGH SCHOOL AND SCALED CAREER BEHAVIORS AT AGE 25*

Scaled Career Behaviors at Age 25	I-Equity			II-Reasons			Abilities			IIIB Interests			IV-Goal			VA Socioeconomic			VB Educational			Total Career Development		
Wisdom of Pref.	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
in Grade	12	12	9	12	12	9	12	12	9	12	12	9	12	12	9	12	12	9	12	12	9	12	12	9
				+	+	+							+	+	+	-	-	-	-	-	-			
Socioecon. Acc. 1st Pref.	17	-07	02	05	-06	-07	02	-12	02	09	11	-05	17	-05	-06	11	-20	08	-13	-12	02	14	-12	-02
				+	+	+							+	+	+	-	-	-	-	-	-			
Socioecon. Acc. All Pref's.	14	-09	03	06	-03	-07	03	-11	-02	-08	07	-11	12	-07	-07	09	-14	06	-03	-11	03	09	-10	-06
	+	+	+	+	+	+							+	+	+									
Agreement: Abil. 1st Pref.	10	12	04	14	14	13	-02	-01	04	-02	-09	02	-07	-09	08	-10	-03	-01	05	16	07	03	04	11
	+	+	+	+	+	+							+	+	+									
Agreement: Abil. All Pref's.	03	24	07	24	22	12	-06	12	01	-03	05	04	09	-13	-01	01	01	00	12	14	10	13	15	10

---

*N for Group 9-9, 9-12, 9-19 (the original 9th Graders in 9th, 12th, or 19th grades) varies from 91 to 103.
N for Group 8-12, 8-19 (the original 8th Graders) varies from 82 to 88.
See Table VII-1 for explanatory notes.

behaviors. Implementation in school activities is not so related.

3. Interest maturity as measured by the SVIB in grade 12 (and to a lesser extent in grade 9) is also a good predictor of certain early adult career behaviors as measured here; having primary interest patterns is unrelated.

4. The nature of high school work experience (part-time and vacation) is not related to post-high-school career development, although in junior high school it may be predictive of less post-high-school education.

5. Wisdom or realism of vocational preferences, as shown by agreement between actual abilities and those required by the various occupations in which interest is expressed when in twelfth grade (but not in ninth grade), is also a predictor of scaled career behavior at age 25, but other supposed wisdom measures show no such predictive validity.

6. The most predictable of the scaled career behaviors at age 25 is the realism of reasons for changing positions. Improvement in educational status during the post-high-school years is also predictable. Each of these criteria is better predicted from twelfth than from ninth grade, and better alone than when additively combined with the other scales of career development which, in preliminary intercorrelational analysis, appeared to have construct validity.

Vocational Maturity and Vocational Coping Behavior

This section deals with the relationships between factorially valid vocational maturity measures obtained in grades 9 and 12, and stabilizing or floundering vocational coping behavior during the post-high-school years. Chapter V described the stabilizing and floundering, the positive-negative behaviors, but it may help briefly to restate their nature here.

Each move or position change made by a subject after leaving high school was judged by several different sets of criteria: one was psychological, another socioeconomic, and each of these sets could be broken down into the internal (phenomenological) and the external (normative). Using this four-fold approach, each position change could be classified as involving floundering (random movement), trial (a move made with some rationale), instrumentation (a move made in order to attain another objective), or establishment (a move made to get a start in an appropriate occupation); not-moving can further be classified as stagnation (staying in a position longer than is appropriate). Thus a floundering move may be judged to be that by internal psychological standards, because the subject felt he did not know what he was doing, or by external psychological standards, because the subject lacked the tested abilities and interests which would have justified such a move; it may be so adjudged by internal social standards, because the subject felt that it led nowhere, or by external social standards, because the second position bore no relationship to the first on the occupational lattice.

The four-by-five table which results from such a classification could not be used in a classical prediction study relating one set of continuous or dichotomous variables to another. Four of the five categories of career behavior are relevant here, as they involve moves; they were therefore collapsed into a dichotomy, floundering being classified as a negative behavior, and trial, instrumentation, and establishment as positive, stabilizing types of career moves.[1] The distinctions between external and internal, psychological and socioeconomic, frameworks were maintained despite their high intercorrelations (.80 to .89), leading to four related judged vocational coping behavior criteria. The results are presented in Tables VII-6 through VII-10.

(Insert Table VII-6 about here)

Occupational Information

The data in Table VII-6 are organized for exploratory analysis and hypothesis testing in the same way as in Tables VII-1 through VII-5.

Preferred Occupation. Knowledge of High School Background Needed for the

---

[1] Although not relevant to moves, stagnation is included with judgements of floundering status at age 25. For the total groups, 8 9-19 and 12 8-19 subjects were stagnating.

Table VII-6
OCCUPATIONAL INFORMATION IN HIGH SCHOOL AND STABILIZING OR FLOUNDERING AFTER HIGH SCHOOL*

Stabilizing or Floundering After H.S.	External Social Judgement			External Psychological Judgement			Internal Social Judgement			Internal Psychological Judgement		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Occ'l Info. in Grade	12	12	9	12	12	9	12	12	9	12	12	9
Pref. Occ.												
H.S. Background	22	03	-01	22	-03	-06	18	09	-03	20	06	-03
Training & Education	+ 33	+ 13	+ 14	+ 27	+ 09	+ 08	+ 19	+ 05	+ 09	+ 21	+ 12	+ 07
Supply & Demand	+ 22	+ 19	+ 01	+ 25	+ 21	+ 00	+ 23	+ 08	+ -09	+ 27	+ 12	+ -02
Range of Info.-All Occ's.												
H.S. Background	24	05	00	21	00	-06	15	12	00	18	03	00
Training & Education	32	16	13	27	12	09	19	05	08	22	10	05
Hours	12	01	-01	11	-14	-01	11	03	09	12	-16	05
Supply & Demand	17	20	-07	21	22	-08	13	12	-19	24	16	-11

---

*See Table VII-1 for explanatory notes.
N for 9th grade group = 103; 8th grade group = 85.

preferred occupation, as a twelfth grade boy, is significantly related to three of the four types of judgement of positive-negative career behavior during the post-high-school years, and just misses a significant relationship with the fourth, in the 9-19 subjects. But these low, unhypothesized correlations are not replicated in the 8-19 subjects, nor at the ninth grade level.

Training and Education information in twelfth grade is somewhat more highly and significantly correlated, as hypothesized, with later vocational coping behavior in the 9-19 group, but again replication fails in the 8-19 subjects. Prediction is not possible in the ninth grade with these variables.

Supply and Demand information in twelfth grade, on the other hand, reveals significant correlations, as hypothesized, with stabilizing or floundering behavior judged by external standards in both 9-19 and 8-19 groups. The equally positive correlations when internal standards were used with the first group are not supported in the second group. Again, prediction from grade 9 to age 25 is not possible.

Range of Occupational Information. Results similar to those pertaining to knowledge of the preferred occupation appear when range of knowledge about a variety of occupations is examined. Twelfth-grade Knowledge of High School Background and of Training and Education Needed are correlated, especially when external standards are applied to career behavior, in the first group, but not in the replication group. Twelfth-grade Supply and Demand information tends to be related to stabilizing behavior in both groups although frequently just missing significant levels. Hours of Work information reveals no significant relationships. Ninth grade information is again not predictive of adjudged stabilizing or floundering after high school.

(Insert Table VII-7 about here)

Planning and Implementation

Table VII-7 reports the correlations between the factorially valid planning and information measures in high school and judgements of the positive-negative

Table VII-7
PLANNING AND IMPLEMENTATION IN HIGH SCHOOL IN RELATION TO STABILIZING OR FLOUNDERING AFTER HIGH SCHOOL*

Stabilizing or Floundering After H.S.	External Social Judgement			External Psychological Judgement			Internal Social Judgement			Internal Psychological Judgement		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Planning & Implementing in Grade	12	12	9	12	12	9	12	12	9	12	12	9
	+		+	+		+	+		+	+		+
Planning to Qual.	32	--	14	30	--	10	19	--	09	24	--	09
Implementing in Relevant Activities	-01	--	16	03	--	16	02	--	05	05	--	16

---

[*] See Table VII-1 for explanatory notes.
N for 9th grade group = 103.

quality of early adult vocational coping behavior. These predictor data are available only for the 9-19 sample.

Planning to Qualify for the preferred occupation while in twelfth grade (only) is significantly related, as hypothesized, to the several interrelated judgements of career behavior (one, internal social, just misses significance).

Implementing the Preference in Relevant Activities while in ninth or twelfth grade is not correlated with post-high-school stabilizing or floundering behavior, when judged by various standards. No relationships were hypothesized. Perhaps even the twelfth grade is still one in which the stage of development reached by the adolescent is such that planning is relevant and action to implement plans is still either premature or so rare as to be inappropriate for statistical treatment. If so, this makes the vocational development of twelfth grade boys appear to be essentially similar to that of ninth grade boys, who were previously (Super and Overstreet, 1960) found to be in a planning and exploratory stage rather than ready for decision-making. It may be that the nature of the planning is different, because of the imminence of action with high school leaving, even though little has been done to implement preferences.

Inventoried Interest

Vocational interests of both 9-19 and 8-19 subjects were assessed with Strong's Vocational Interest Blank when in the twelfth grade, and, for the former groups in ninth grade. For purposes of studying vocational development two measures were derived from the Strong Vocational Interest Blank: the standard score for Interest Maturity and a measure of primary, as opposed to weaker, interest patterns. Table VII-8 gives the correlations with judged career behavior after high school.

(Insert Table VII-8 about here)

Interest Maturity. This scale, used in twelfth grade (but not consistently in the 9-19) yields significant and positive correlations with judgements of

Table VII-8
INVENTORIED INTEREST IN HIGH SCHOOL AND STABILIZING OR FLOUNDERING AFTER HIGH SCHOOL*

Stabilizing or Floundering After H.S.	External Social Judgement			External Psychological Judgement			Internal Social Judgement			Internal Psychological Judgement		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Interest Inventoried in Grade	12	12	9	12	12	9	12	12	9	12	12	9
Interest Maturity (SVIB)	27	24	14	29	13	17	20	20	05	31	09	14
	+	+	+	+	+	+	+	+	+	+	+	+
Primary Interest Patterns	12	-02	-01	08	-05	02	08	05	-02	06	-07	-01

---

[*] See Table VII-1 for explanatory notes.
N for 9th grade group = 103; 8th grade group = 76.

stabilizing-floundering career behavior during the post-high-school years in the exploratory group, and the resulting hypotheses are confirmed in the replication group when external or internal social standards are applied.

Primary Interest Patterns. None of the correlations between having a primary interest pattern, that is, highly developed interests in some or more fields of work, and early vocational coping behavior, is significant. This is contrary to the a priori hypotheses, for it seemed clear that persons with well-defined interests would move more directly toward and into appropriate occupations. Perhaps it is unreasonable to expect this to happen by age 25, but Strong's (1955) data on college students suggest that it is not unusual in mobile populations. These samples are more heterogeneous than Strong's, but their educational and occupational histories have been seen (Chapter III) to have involved a substantial degree of upward mobility.

Nature of Work Experience in High School

The two measures of high school work experience which had substantial vocational maturity factor loadings were correlated with judged career behavior, with results shown in Table VII-9. Positive correlations were hypothesized.

(Insert Table VII-9 about here)

Self-Employment. Although unrelated to external social assessments of early coping behavior, self-employment as a high school boy was just barely, or just missed being, significantly related to other assessments of stabilizing or floundering during the post-high-school years. The twelfth grade correlations tend to hover between .16 and .21, on either side of significance at the .05 level, in both the first and replication groups, and are therefore open to some question. There are no significant ninth grade relationships.

Auspices of High School Employment. The results for the measure of auspices under which the subject found employment during vacations or as a high school student are similar to those for self-employment, but the significant

Table VII-9
NATURE OF WORK EXPERIENCE IN HIGH SCHOOL AND STABILIZING OR FLOUNDERING AFTER HIGH SCHOOL*

Stabilizing or Floundering After H.S.	External Social Judgement			External Psychological Judgement			Internal Social Judgement			Internal Psychological Judgement		
Nature of Wk. Exper. through Grade	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
	12	12	9	12	12	9	12	12	9	12	12	9
Self-Employment	+14	+08	+04	+21	+17	+07	+12	+18	+02	+21	+16	+04
Auspices	+06	+12	+01	+20	+15	+04	+07	+19	+01	+21	+03	+01

---

*See Table VII-1 for explanatory notes.
N for 9th grade group = 103; 8th grade group = 85.

results with one group tend to be even more questioned by non-significant coefficients in the other group.

Better measures of these variables, and larger numbers, may well reveal that the nature of a high school boy's part-time and vacation employment is indeed related to the amount of floundering and trial behavior during his early adult career. The hypothesis certainly cannot yet be rejected.

Wisdom of Vocational Preferences

Table VII-10 reports the data on relationships between wisdom of vocational preferences, as variously assessed in high school, and early adult floundering or stabilizing. Positive relationships were hypothesized.

(Insert Table VII-10 about here)

Socioeconomic Accessibility. With neither the first occupational preference, nor when all preferences were taken into account, did the socioeconomic accessibility of the goal when in junior or in high school predict the positive or negative quality of vocational coping behavior. Perhaps this is not surprising, despite the importance of parental socioeconomic status, in intellectually heterogeneous samples of subjects who have readily available to them an educational ladder which reaches the fourteenth grade, and who live in an area with varied occupational opportunities.

Agreement between Actual and Required Abilities. When only the First Preference is taken into account, there are the hypothesized positive relationships between having the required abilities for the occupation aspired to in the twelfth grade and subsequent floundering or stabilizing career behavior in the validation sample and also in the same group when assessed in ninth grade, but not in the twelfth grade cross-validation group. When All Preferences are taken into account, which may be more reasonable, even clearer positive relationships with later career behavior are observed in the first twelfth grade group, as hypothesized, again fail to appear again in the second group,

Table VII-10
WISDOM OF VOCATIONAL PREFERENCES IN HIGH SCHOOL AND STABILIZING OR FLOUNDERING AFTER HIGH SCHOOL*

Stabilizing or Floundering After H.S.	External Social Judgement			External Psychological Judgement			Internal Social Judgement			Internal Psychological Judgement		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Wisdom of Pref. in Grade	12	12	9	12	12	9	12	12	9	12	12	9
	+	+	+	+	+	+	+	+	+	+	+	+
Socioecon. Acc.-1st Pref.	12	-02	08	08	02	10	13	-17	08	09	-11	04
	+	+	+	+	+	+	+	+	+	+	+	+
Socioecon. Acc.-All Pref's.	11	-07	07	08	-03	08	14	-21	06	10	-12	03
	+	+	+	+	+	+	+	+	+	+	+	+
Agreement: Abil.-1st Pref.	19	00	22	13	-16	20	23	-08	32	10	-19	17
	+	+	+	+	+	+	+	+	+	+	+	+
Agreement: Abil.-All Pref's.	26	05	15	22	-10	17	31	-01	16	21	-06	15

---

*See Table VII-1 for explanatory notes.
N for 9th grade group = 103; 8th grade group = 85.

and are observed again, but less consistently, in ninth grade.

Whether the confirmation of the hypothesis is to be accepted, on the basis of support in the first group at both grade levels and on the grounds that other variables must interfere with normal relationships in the second group, or whether the hypothesis is to be considered not supported because of failure to replicate in a different sample, is a difficult question. We have seen that the original eighth and original ninth grade groups differed little in high school: the latter group included more Catholics, was more likely to start Regents level courses, and participated more in out-of-school activities for longer periods (church activity might be expected to be more frequent in a group which included transfers from the local parochial school), but was of the same socioeconomic and intellectual levels and finished high school at the same educational level. Similarly, the educational and occupational statuses, and the career behaviors, of the two samples differed little at the criterion age of 25 (Chapter III), although other differences (Chapter V) are significant. The failure to replicate may therefore be due to subtle sampling differences.

Summary: The Prediction of Vocational Coping Behavior

The findings concerning the relationships between various measures of vocational maturity in high school and judgements of the stabilizing or floundering quality of vocational coping behavior from high-school leaving to age 25 lead to the following conclusions:

1. *Occupational information* possessed in grade 12, when defined as knowledge of needed high school background or as knowledge of needed training and education, for either the preferred occupation or for all occupations, is related to stabilizing or floundering career behavior as hypothesized in one sample but, puzzlingly, not in the other. When defined as knowledge of supply and demand, in the preferred occupation and in other occupations of interest, the expected relations are found in both first and replication samples. Twelfth

grade knowledge of the hours of work was not, however, related to floundering or trial behavior during the post-high-school years in either sample. No such relationships were found between ninth grade information and stabilizing behavior after high school.

2. Planning to qualify for the occupation preferred while in twelfth grade is related as expected to floundering and trial, positive-negative, career behaviors. The relation does not hold at the ninth grade level. Implementing the preference in related activities is not, suggesting that even twelfth graders are still essentially in the exploratory stage.

3. Interest, as measured by the maturity scale of the SVIB in the twelfth grade, but not in the ninth, is consistently related to socioeconomically judged stabilizing career behavior after high school; having high scores in one or more occupational fields (primary interest patterns on the SVIB) is not so related. This suggests that having a type of interest ("interest maturity" is, operationally defined, having interests more like those of 25-year old men than like those of 15-year old boys, and is content-defined as having social service rather than technical interests) is more predictive in a heterogeneous group than is the degree of concentration of interest.

4. The nature of senior high school (but not junior high school) work experience (part-time and vacation) appears to have a somewhat inconsistently low but positive relationship to the stabilizing-floundering quality of early adult career behavior; the relationship is less tenuous for self-employment than for the type of auspices under which those employed by others work.

5. Wisdom of vocational preferences, measured by agreement between actual and required abilities, when either first or all occupational preferences in twelfth grade, and even as early as ninth grade, are considered, is related as hypothesized to floundering and stabilization after high school, in one group, but the finding is not supported in the cross-validation group. No relationships

exist between wisdom as judged by socioeconomic accessibility of preferences. Further and more consistent evidence is needed before any relationships can be considered firmly established.

6. Predictions reported in this section suggest that external social and psychological standards for judging the positive-negative quality of early career behavior are about equally predictable criteria, and internal psychological standards appear to be about equally good. This is not surprising in view of their high intercorrelations. That internal social standards as assessed here are not as good is, in view of the intercorrelations, somewhat surprising.

Vocational Maturity and Career Statistics

A number of criteria of career success, more objective or simpler conceptually than the scaled or adjudged career behaviors, were also developed. These may be classified as Employment History, Educational Level Attainment, and Self-Estimated Career Criteria. They are described in more detail in Chapter V. In this section their relationships with antecedent vocational maturity variables are reported.

(Insert Table VII-11 about here)

Occupational Information and Later Employment History

Table VII-11 gives the correlations between various occupational information measures in twelfth and ninth grades, on the one hand, and post-high-school employment history measures on the other. Only one of the coefficients is significant at the .05 level, that between Knowledge of Hours of Work and Number of Moves (position changes) in the twelfth grade exploratory group, and it is not replicated in the twelfth grade validation group nor in the ninth grade. The relationship is negative (-.23), as might be expected: the original ninth graders who knew most about the hours of work in the occupations preferred

Table VII-11
OCCUPATIONAL INFORMATION IN HIGH SCHOOL AND LATER EMPLOYMENT HISTORY*

Employ. History at Age 25	Number of Moves			Times Unemployed			Months Unemployed			Months Self-Support		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Occ'l Info. in Grade	12	12	9	12	12	9	12	12	9	12	12	9
Pref. Occ.												
H.S. Background	-09	04	12	-05	12	02	-01	09	-01	11	-16	06
Training & Education	-14	-12	-07	-08	-15	07	-06	-14	08	07	-11	00
Supply & Demand	-14	01	-10	-13	12	-14	-12	10	-14	18	03	-12
Range of Info.-All Occ's.												
H.S. Background	-10	01	04	-09	09	02	-05	05	-02	03	-18	-05
Training & Education	-13	-11	-09	-12	-14	08	-10	-14	09	09	-13	-01
Hours	-23	01	-05	-11	23	01	-09	16	01	00	-05	03
Supply & Demand	-09	-02	-17	-18	05	-10	-18	08	-11	01	07	-12

---

[*] See Table VII-1 for explanatory notes.
N for 9th grade group = 103; 8th grade group = 88.

in twelfth grade changed positions least often during their post-high-school years, but lack of support in the validation group raises doubts either as to the reliability of the finding or as to the adequacy of the validation sample. There is no reason for doubting the latter. The only other correlation large enough to be significant is in the wrong direction (Hours and Times Unemployed in the cross-validation group only, r = .23), casting further doubts of the same type. No hypothesized relationships were found.

(Insert Table VII-12 about here)

Planning and Implementation in Relation to Employment History

Table VII-12 reports the correlations between Planning and Implementation measures which seemed to assess vocational maturity in high school and Later Employment History, for the original ninth graders (data not available for original eighth grade boys). Only the correlation of .20 between twelfth grade Implementation of Preference in Relevant Activities and Months Self-Supporting is significant (.05 level), although it may also be correlated with Times Unemployed (r = .19). Although the directions are those which might be hypothesized, the low coefficients and the lack of data for cross-validation must make any conclusions highly tentative. Ninth grade planning has no predictive validity for later employment history. Hypothesized relationships were not found.

(Insert Table VII-13 about here)

Inventoried Interest and Employment History

Table VII-13 displays the correlations between the two predictor variables based on the interest inventory and post-high-school employment history measures. None of the coefficients is significant, none were hypothesized.

(Insert Table VII-14 about here)

Nature of High School Work Experience and Later Employment History

Only one of the two measures, that for Auspices of Employment, shows any relationship to the post-high-school employment history, and that only to one

Table VII-12
PLANNING AND IMPLEMENTATION IN HIGH SCHOOL AND LATER EMPLOYMENT HISTORY*

Employ. History	Number of Moves			Times Unemployed			Months Unemployed			Months Self-Support		
at Age 25	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Planning & Implementing in Grade	12	12	9	12	12	9	12	12	9	12	12	9
Planning to Qual.	04	--	-03	-04	--	-05	-05	--	-03	16	--	01
Implementing in Relevant Activities	11	--	-05	19	--	13	13	--	05	20	--	12

---

*See Table VII-1 for explanatory notes.
N for 9th grade group = 103.

Table VII-13

INVENTORIED INTEREST IN HIGH SCHOOL AND LATER EMPLOYMENT HISTORY*

Employ. History at Age 25	Number of Moves			Times Unemployed			Months Unemployed			Months Self-Support		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Interest Inventoried in Grade	12	12	9	12	12	9	12	12	9	12	12	9
Interest Maturity (SVIB)	-04	01	10	-05	19	03	-08	08	-02	-13	-07	05
Primary Interest Patterns	07	-11	17	00	-12	14	-04	-03	12	07	-04	-04

---

*See Table VII-1 for explanatory notes.
N for 9th grade group = 103; 8th grade group varies from 79 to 80.

Table VII-14
NATURE OF WORK EXPERIENCE IN HIGH SCHOOL AND LATER EMPLOYMENT HISTORY*

Employ. History at Age 25	Number of Moves			Times Unemployed			Months Unemployed			Months Self-Support		
Nature of Wk. Exper. through Grade	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9
Self-Employment	06	-10	09	00	-02	07	$\overline{00}$	$\overline{02}$	$\overline{11}$	04	13	-02
Auspices	11	13	12	-05	-01	-06	$\overline{-01}$	$\overline{-04}$	$\overline{-02}$	07	$\underline{26}$	-04

---

*See Table VII-1 for explanatory notes.
N for 9th grade group = 103; 8th grade group = 88.

criterion measure in the 8-19 replication group (Table VII-14). No importance can therefore be attached to it, although further research with improved measures of part-time and vacation work experience might yield different results. Expected relationships were not found.

(Insert Table VII-15 about here)

Wisdom of Vocational Preferences and Later Employment History

Although the wisdom of the boy's first vocational preference, and that of all of the occupations he considered seriously in high school, was judged by the socioeconomic accessibility of the occupation and by the similarity of his abilities to those required by the occupations in question, not one of the four measures of wisdom of vocational preferences was significantly correlated with any of the four measures of post-high-school employment history, in ways hypothesized or merely explored. Table VII-15 reports these data.

(Insert Table VII-16 about here)

Occupational Information and Educational Attainment

Preferred Occupation. Knowledge of High School Background and of Training and Education Needed both predict the Educational Level Attained during the post-high-school years through college or other forms of study, in exploratory and in replication twelfth grade samples, and both are also valid as early as ninth grade ($r = .18$ to $.53$). The other correlations of information about the preferred occupation with later educational attainment are erratic and not confirmed in the other samples; despite this, the rather substantial relationships between the two types of more advanced knowledge (Training and Education and Supply and Demand) and Quality-Grade-Point Average in college, in the first sample at both grade levels, are of interest and merit further study.

Range of Information. Similar relationships are observed for the various Education and Supply and Demand information measures based on all occupations of interest to the subject at both grade levels, on the one hand, and Educational Level Attained and College Grades on the other. Knowing what kinds of education

Table VII-15
WISDOM OF VOCATIONAL PREFERENCES IN HIGH SCHOOL AND LATER EMPLOYMENT HISTORY*

Employ. History at Age 25	Number of Moves			Times Unemployed			Months Unemployed			Months Self-Support		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Wisdom of Pref. in Grade	12	12	9	12	12	9	12	12	9	12	12	9
Socioecon. Acc.- 1st Pref.	-06	-02	09	-11	07	05	-09	03	10	-13	06	-02
Socioecon. Acc.- All Pref's.	-12	00	05	-08	04	11	-03	03	14	03	-10	01
Agreement: Abil.- 1st Pref.	01	-11	00	08	05	17	12	-01	17	04	-02	05
Agreement: Abil.- All Pref's.	-06	-07	01	06	07	09	09	-06	10	11	03	14

---

*See Table VII-1 for explanatory notes.
N for 9th grade group = 103; 8th grade group = 88.

Table VII-16
OCCUPATIONAL INFORMATION IN HIGH SCHOOL AND EDUCATIONAL ATTAINMENT*

Educational Level at Age 25	Educational Level			Parent Comparison			College Grade Point Average		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Occ'l Info. in Grade	12	12	9	12	12	9	12	12	9
Pref. Occ.									
H.S. Background	23	37	18	06	22	16	10	18	11
Training & Education	53	43	23	08	09	08	41	01	33
Supply & Demand	01	04	-04	-14	10	02	36	-22	05
Range of Info.-All Occ's.									
H.S. Background	33	36	19	05	20	13	28	11	01
Training & Education	46	52	19	01	16	11	35	02	35
Hours	13	00	04	09	00	05	16	-28	04
Supply & Demand	-05	10	-17	-17	13	-04	25	-04	07

---

*See Table VII-1 for explanatory notes.
N for 9th grade group varies from 55 to 103; 8th grade group varies from 35 to 88.

and training are needed for occupations one is considering when in both junior and senior high school is related to how much education one later obtains, and it may also be related to how well one does in college.

(Insert Table VII-17 about here)

Planning and Implementing in Relation to Educational Attainment

Table VII-17 reports the data on planning and implementation measures as predictors of educational attainment in the one group for which the predictor data are available. Planning to Qualify in both ninth and twelfth grades is significantly correlated, as hypothesized, with Educational Level attained after high school, and (at least in twelfth grade) with Grade-Point Average in college. As in other analyses of these predictors, the tendency is for only planning, not for implementing, in high school to be related to later career behaviors.

(Insert Table VII-18 about here)

Inventoried Interest and Educational Attainment

In Table VII-18 are presented the correlations between interests inventoried in school and later educational attainment. Interest Maturity, in both grades 12 and 9, is significantly related to Educational Level Attained, in both exploratory and validation samples (r = .29 to .51), and to College-Grade-Point Average in only the twelfth grade exploratory group. The nearly significant correlation with grades in the smaller cross-validation group, and those for having a Primary Interest Pattern with the same criteria, suggest that it and the grade-point average criterion, are worth further study. In any case, the Interest Maturity scale has been demonstrated to be useful for a hitherto unobserved type of prediction, the amount of education beyond high school which a student is likely to attain.

(Insert Table VII-19 about here)

Nature of High School Work Experience and Educational Attainment

The two measures of type of part-time or vacation work experience while in

Table VII-17
PLANNING AND IMPLEMENTATION IN HIGH SCHOOL AND EDUCATIONAL ATTAINMENT*

Educational Level at Age 25	Educational Level			Parent Comparison			College Grade Point Average		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Planning & Implementing in Grade	12	12	9	12	12	9	12	12	9
Planning to Qualify	+ 39	--	+ 22	09	--	04	+ 26	--	+ 21
Implementing in Relevant Activities	01	--	05	-11	--	-04	19	--	-02

---

[*] See Table VII-1 for explanatory notes.
N for 9th grade group varies from 55 to 103.

Table VII-18
INVENTORIED INTEREST IN HIGH SCHOOL AND EDUCATIONAL ATTAINMENT*

Educational Level at Age 25	Educational Level			Parent Comparison			College Grade Point Average		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Interest Inventoried in Grade	12	12	9	12	12	9	12	12	9
Interest Maturity (SVIB)	35	51	29	16	12	10	25	20	12
Primary Interest Patterns	19	19	18	04	-01	-01	22	07	02

---

*See Table VII-1 for explanatory notes.
N for 9th grade group varies from 55 to 103; 8th grade group varies from 33 to 80.

Table VII-19
NATURE OF WORK EXPERIENCE IN HIGH SCHOOL AND EDUCATIONAL ATTAINMENT*

Educational Level at Age 25	Educational Level			Parent Comparison			College Grade Point Average		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Nature of Wk. Exper. through Grade	12	12	9	12	12	9	12	12	9
Self-Employment	-09	-14	-17	-18	05	06	24	09	18
Auspices	-11	-15	-14	-23	-01	01	12	01	11

---

*See Table VII-1 for explanatory notes.
N for 9th grade group varies from 55 to 103; 8th grade group varies from 35 to 88.

high school are unrelated to the education obtained after high school except for unsupported correlations of Self-Employment with College-Grade-Point Average (.24) and of Auspices with Educational Level Compared with Parent, the latter being negative (-.23). (Table VII-19.)

(Insert Table VII-20 about here)

Wisdom of Vocational Preferences in High School and Educational Attainment

No *a priori* hypotheses were set up for testing with the first group in analyzing the relationships between the four wisdom of high school vocational preference measures in relation to the educational attainment criteria. Table VII-20 shows that none were significantly correlated in either twelfth grade group nor at the ninth grade level with Educational Level Attained by Age 25. In the exploratory analysis both Socioeconomic Accessibility measures yielded correlations of about -.25 with the measure comparing the boy's parents' education with his adult attainment, confirmed in the same group at the ninth grade level, but the correlations in the twelfth grade validation group just miss being large enough to be significant. It does seem logical that boys who, in high school, aspire to occupations which resemble those of their parents in socioeconomic status, would tend not to obtain much more education than did their parents; had this been hypothesized, the findings would have been firm rather than suggestive.

The moderately high and significant positive correlations between the wisdom measures based on Agreement of Abilities and First Preference and post-high-school Grades in the exploratory analysis suggest an hypothesis which is supported at the .05 level in the validation group, and confirmed even at the ninth grade level. An hypothesis concerning Agreement between Abilities and All Preferences as a predictor of later grades, justified by the 9-12 results, is not supported by the 8-12 validation group, but is supported in the same group when in ninth grade.

Table VII-20
WISDOM OF VOCATIONAL PREFERENCES IN HIGH SCHOOL AND EDUCATIONAL ATTAINMENT*

Educational Level at Age 25	Educational Level			Parent Comparison			College Grade Point Average		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Wisdom of Voc'l Pref. in Grade	12	12	9	12	12	9	12	12	9
Socioecon. Accessibility - 1st Pref.	-09	-16	00	-27	-18	-27	-03	-12	04
Socioecon. Accessibility - All Pref's.	-01	-16	-10	-25	-17	-27	-12	-14	05
Agreement: Ability - 1st Pref.	06	13	12	01	-11	09	42	21	46
Agreement: Ability - All Pref's.	16	14	12	07	-08	05	35	02	26

---

*See Table VII-1 for explanatory notes.
N for 9th grade group varies from 55 to 103; 8th grade group varies from 35 to 88.

(Insert Table VII-21 about here)

Occupational Information in High School and Self-Estimated Career Criteria

Table VII-21 shows that, although a number of hypotheses were set up on *a priori* grounds, none of those using the *Attainment of the Occupational Goal* set during the last year of high school as criterion were supported. Those involving self-estimated *Career Establishment*, *Career Success*, and *Career Satisfaction* as criteria (all of these intercorrelating from .44 to .77) were confirmed in the validation sample when *Training and Education* and *Supply and Demand* information were predictors. These relationships were generally just below significance or completely unsupported in the cross-validation sample. Until more consistent evidence is produced, the most legitimate conclusion is that a relationship between knowledge of preferred occupations in high school cannot be considered to be related to later self-estimated success in the handling of a career. Further research on this question does seem well warranted by the positive results when training information is the predictor and career success is the criterion.

(Insert Table VII-22 about here)

Planning and Implementation and Self-Estimated Career Criteria

Again, in Table VII-22, the three moderately intercorrelated career estimates are predicted by the measure of *Planning to Qualify* for the preferred occupation. Hypotheses set up on *a priori* grounds are supported not only in twelfth grade, but even in ninth. The low positive correlations merit confirmation in further studies. As with other criteria, the *Implementation* measure shows no predictive validity.

(Insert Table VII-23 about here)

Inventoried Interest and Self-Estimated Career Criteria

For Table VII-23, no relationships between *Interest Maturity* and the various career criteria were hypothesized *a priori*: the predictive validity of

Table VII-21
OCCUPATIONAL INFORMATION IN HIGH SCHOOL AND SELF-ESTIMATED CAREER CRITERIA*

Career Criteria	Attainment of High School Goal			Career Establishment			Career Success			Career Satisfaction		
at Age 25	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Occ'l Info. in Grade	12	12	9	12	12	9	12	12	9	12	12	9
Pref. Occ.												
H.S. Background	-01	-03	02	12	-10	03	11	-04	07	18	06	-08
	+	+	+	+	+	+	+	+	+	+	+	+
Training & Education	03	-11	08	24	19	11	22	18	25	28	06	16
	+	+	+	+	+	+	+	+	+	+	+	+
Supply & Demand	04	-02	16	33	16	04	25	11	13	23	01	03
Range of Info.-All Occ's.	+	+	+	+	+	+	+	+	+	+	+	+
H.S. Background	-05	-01	06	15	-08	07	11	-04	13	21	08	03
	+	+	+	+	+	+	+	+	+	+	+	+
Training & Education	10	-13	18	22	18	16	28	19	24	24	08	20
Hours	13	-17	-01	22	-15	08	22	00	07	16	-06	07
	+	+	+	+	+	+	+	+	+	+	+	+
Supply & Demand	-08	-05	12	30	19	05	19	14	04	20	07	-01

---

*See Table VII-1 for explanatory notes.
N for 9th grade group varies from 97 to 102; 8th grade group varies from 85 to 88.

Table VII-22
PLANNING AND IMPLEMENTATION IN HIGH SCHOOL AND SELF-ESTIMATED CAREER CRITERIA*

Career Criteria	Attainment of High School Goal			Career Establishment			Career Success			Career Satisfaction		
at Age 25	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Planning & Implementing in Grade	12	12	9	12	12	9	12	12	9	12	12	9
	+		+	+		+	+		+	+		+
Planning to Qual.	05	--	18	20	--	18	24	--	28	22	--	16
Implementing in Relevant Activities	16	--	10	-05	--	18	-04	--	13	08	--	21

---

* See Table VII-1 for explanatory notes.
N for 9th grade group varies from 97 to 102.

Table VII-23
INVENTORIED INTEREST IN HIGH SCHOOL AND SELF-ESTIMATED CAREER CRITERIA*

Career Criteria	Attainment of High School Goal			Career Establishment			Career Success			Career Satisfaction		
at Age 25	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Interest Inventoried in Grade	12	12	9	12	12	9	12	12	9	12	12	9
Interest Maturity (SVIB)	-04	-17	01	20	14	-09	25	21	07	25	24	00
	+	+	+	+	+	+	+	+	+	+	+	+
Primary Interest Patterns	02	-14	-03	09	03	-14	14	04	-02	04	17	-14

---

*See Table VII-1 for explanatory notes.
N for 9th grade group varies from 97 to 102; 8th grade group varies from 77 to 8

the scale had not been sufficiently demonstrated in other studies, with other criteria. But having a Primary Interest Pattern had frequently proved a significant trait, and directional hypotheses were set up. The results show that Interest Maturity does have some predictive validity for success and satisfaction in the handling of a career; two positive correlations of .25 are replicated. Having a high degree of interest in one or more families of related occupations is, however, not related to the self-estimated effective handling of one's career.

(Insert Table VII-24 about here)

Nature of Work Experience in High School and Self-Estimated Career Criteria

Table VII-24 reports the exploratory and validation analysis of relationships between the two Work Experience in High School measures which had been found to load heavily on vocational maturity, and self-estimates of Career Criteria. Only one relationship was found in the exploratory analysis, between having been Self-Employed in high school and Career Satisfaction at age 25, a very low positive correlation which was confirmed in the validation group. The Auspices of high school employment just missed significance for the same criterion in both groups, further suggesting that Career Satisfaction may indeed be predicted by the Nature of High School Experience even though not by junior high school work experience.

(Insert Table VII-25 about here)

Wisdom of Vocational Preferences in High School and Career Criteria

Table VII-25 reports another exploratory analysis for the first group, and validation with the second group. Attainment of High School Goal is not a predictable criterion on the basis of wisdom of twelfth grade preferences, although it does, strangely, appear to be predictable from ninth grade wisdom. The Career Self-Estimates are predicted in the first group without replicating in the second group, but Agreement between Ability and First Preference does have

Table VII-24
NATURE OF WORK EXPERIENCE IN HIGH SCHOOL AND SELF-ESTIMATED CAREER CRITERIA*

Career Criteria at Age 25	Attainment High School Goal			Career Establishment			Career Success			Career Satisfaction		
Nature of Wk.	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Exper. through Grade	12	12	9	12	12	9	12	12	9	12	12	9
Self-Employment	-06	03	03	14	09	07	09	03	02	18	19	04
Auspices	00	07	-05	09	08	06	03	00	07	15	17	00

---

*See Table VII-1 for explanatory notes.
N for 9th grade group varies from 97 to 102; 8th grade group varies from 85 to 88.

Table VII-25
WISDOM OF VOCATIONAL PREFERENCES IN HIGH SCHOOL AND SELF-ESTIMATED CAREER CRITERIA*

Career Criteria at Age 25	Attainment High School Goal			Career Establishment			Career Success			Career Satisfaction		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Wisdom of Voc'l Pref. in Grade	12	12	9	12	12	9	12	12	9	12	12	9
Socioecon. Acc.-1st Pref.	13	10	21	15	-18	-02	20	-08	05	10	-12	03
Socioecon. Acc.-All Pref's.	18	15	24	17	-22	-02	20	-12	01	16	-17	-01
Agreement: Abil.-1st Pref.	05	10	18	19	-03	19	21	-03	19	20	-15	19
Agreement: Abil.-All Pref's.	11	05	18	28	-01	08	38	-06	13	24	-06	07

---

*See Table VII-1 for explanatory notes.
N for 9th grade group varies from 97 to 102; 8th grade group varies from 85 to 88.

some predictive validity even in the ninth grade for the original ninth grade group. Again the question of the adequacy of the measures of the implicit hypotheses, and of the data on the second sample for replication, arise. We have seen that there is no reason for questioning the last, especially if the measures were to be considered for general high school use. (Data reported later, however, do suggest that the early determinants of later success may include common variables for both samples plus one set of variables for one sample and another set for the other sample.) The predictor measures involve procedures which are themselves quite objective and standardized. It would appear to be the implicit hypotheses which are most open to question: the wisdom or realism of vocational preferences as judged by socioeconomic accessibility or abilities, even in the twelfth grade, has such a low relationship in one sample and none in the other that it must not be a valid predictor of success in handling the first few years of a post-high-school career.

Summary: Vocational Maturity and Career Statistics

The vocational maturity measures which had construct or factor validity in the preliminary analysis were studied as predictors of three different types of career statistics, summing up employment histories, educational attainments, and self-estimates of career success and satisfaction. The results reported in this section lead to the following conclusions:

1. Occupational information in high school, as measured by this study, is not related to the post-high-school employment history as here assessed. Knowledge of the training and education needed for occupations in which one is interested when in junior as well as in senior high school is related to the number of years of post-high-school education attained, and may be related to grades after high school. This information in both ninth and twelfth grade, and knowledge of supply and demand when in twelfth grade only, may also be related to self-estimates of career (as contrasted with occupational) establish-

ment, success, and satisfaction made in the middle twenties, but more convincing evidence is needed on this relationship.

2. Planning, judged by high-school-made plans to qualify for the preferred occupation, is not related to the post-high-school employment history as measured by job changes, by unemployment, and by self-support. It is (as done in both ninth and twelfth grades) related to the educational level attained after leaving high school, and it does (as done at least in twelfth grade) predict the quality of that study as shown by quality-grade-point averages. Planning (ninth and twelfth grade) is also related to self-estimated career establishment, success, and satisfaction, but further study is needed of these last relationships. Implementing a vocational preference by participating in relevant high school activities is not related to any of the career statistics recorded here.

3. Inventoried interest as judged by maturity and patterning is not related to employment history, and patterning is unrelated to any of the career statistics studied here. Interest maturity in both junior and senior high school, as measured by the Strong Blank, is related to educational level attained after high school and to self-estimated career satisfaction. In twelfth grade only it may be related to grades after high school and to self-estimated career establishment and success. It is, in twelfth grade only, related to career satisfaction. The last-named variables merit further study.

4. Work experience in high school is not related to post-high-school employment history as evaluated here, and appears not to be related systematically to educational attainment or to career success after high school. But having been self-employed while in high school is reliably although slightly related to career satisfaction during the early adult career, and the independence of the auspices of high school employment may also be.

5. Wisdom of vocational preferences in high school, whether judged by socioeconomic or by abilities standards, even as late as twelfth grade, is not

related to the quality of the early adult employment history or to level of post-high-school educational attainment; it is not clearly related to career establishment, success, or satisfaction. There is a suggestion of a relationship between aspiring to an occupation at a level similar to that of the parents while in high school and completing the same amount of education as the parents. And wisdom as judged by ability standards in either ninth or twelfth grade is related to post-high-school grade-point average, and may be related to career success and satisfaction.

6. The most predictable career statistics at age 25, when high school vocational maturity measures serve as the predictors, are educational level attained and career satisfaction; quality-grade-point average in college or technical school, and self-estimated career establishment and success, also show promise as criteria.

Vocational Maturity and Later Occupational Level and Outlets

Three criteria of occupational level attained and outlets found in young adulthood were used: occupational level as rated on a standard scale, utilization of assets as estimated by the subject himself in a discussion of what he had to offer employers and of the extent to which he used them in his job, and opportunity to use his training and abilities and to express his interests as judged also by the subject himself in the interview. These criteria are described in more detail in Chapter V. This section reports their relationships with the high school vocational maturity measures which are the focus of this chapter.

(Insert Table VII-26 about here)

Occupational Information in High School and Later Occupational Level and Outlets

Table VII-26 gives the relationships between occupational information in high school and young adult occupational level and outlets. Knowledge of High School Background needed for the occupation preferred when in senior high

Table VII-26
OCCUPATIONAL INFORMATION IN HIGH SCHOOL AND LATER OCCUPATIONAL LEVEL AND OUTLETS*

Occ'l Attainment at Age 25	Occupational Level			Utilization of Assets			Opportunity for Self-Expression		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Occ'l Info. in Grade	12	12	9	12	12	9	12	12	9
Pref. Occ.									
H.S. Background	18	20	-01	14	-04	-11	12	09	-12
Training & Education	40	31	02	+ 27	+ 11	+ 07	23	05	02
Supply & Demand	11	14	-11	+ 25	+ 17	+ 01	26	16	-12
Range of Info.- All Occ's.									
H.S. Background	21	22	08	21	-05	-05	14	05	-04
Training & Education	44	35	07	26	08	11	23	04	-01
Hours	05	-15	-07	06	-11	01	02	-08	-01
Supply & Demand	09	16	-10	21	18	00	16	15	-11

---

*See Table VII-1 for explanatory notes.
N for 9th grade group varies from 91 to 96; 8th grade group varies from 80 to 87.

school just missed significance as a predictor of later Occupational Level in both exploratory and validation groups, but does predict in both groups when information concerning All Occupations is the predictor, the correlations in all cases being about .20. In the ninth grade this kind of information has no predictive validity. Knowledge of Training and Education concerning both the preferred occupation and all occupations consistently has considerably more predictive validity for Occupational Level in the middle twenties, with substantial (twelfth grade only, both samples) correlations of from .31 to .44.

Neither Utilization of Assets nor Opportunity for Self-Expression is as consistently predicted: it had been hypothesized that the former criterion would be predicted by Training and Education and by Supply and Demand information concerning the occupation preferred in high school, and correlations of .27 and .25 confirmed this, but they were not replicated in the cross-validation group nor in the validation group as ninth graders. Other promising results in the exploratory analyses were not supported in the validation processes, although correlations approaching significance in the smaller second group would warrant further research with the Training and Education and particularly the Supply and Demand predictors and the Outlet (Utilization and Self-Expression) criteria.

(Insert Table VII-27 about here)

Planning and Implementation in High School vs. Later Occupational Level and Outlets

Relationships between Planning to Qualify for the Preferred Occupation when in high school and Occupational Level and Utilization of Assets at age 25 were hypothesized, and were supported in the one twelfth grade group for which such data were available. Table VII-27 gives the data. The relationships do not hold for the same group as ninth graders. In view of the fairly frequent nonreplication of such findings when data permit cross-validation, these

Table VII-27
PLANNING AND IMPLEMENTATION IN RELATION TO LATER OCCUPATIONAL LEVEL AND OUTLETS*

Occ'l Attainment at Age 25	Occupational Level			Utilization of Assets			Opportunity for Self-Expression		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Planning & Implementing in Grade	12	12	9	12	12	9	12	12	9
Planning to Qual.	+36	--	+14	+27	--	+11	27	--	00
Implementing in Relevant Activities	04	--	13	01	--	10	12	--	11

---

*See Table VII-1 for explanatory notes.
N for 9th grade group varies from 91 to 96.

relationships, and especially the unhypothesized significant relationship with the second outlet criterion, Opportunity for Self-Expression, must be viewed with caution. Implementation in relevant extra-curricular activities while in high school has, as in other analyses, no predictive validity.

(Insert Table VII-28 about here)

Inventoried Interest and Later Occupational Level and Outlets

No relationships between the Interest Maturity scale of the Strong Vocational Interest Blank and the Occupational Level and Outlets criteria were hypothesized, in view of the factor structure of the Interest Maturity scale, but that it has substantial predictive validity for the Level criterion is made clear by replicated correlations of .46, .35, and .33 significant at the .01 level, in grades 12 and 9. It just misses significance in its relationship with the Utilization criterion in the twelfth grade exploratory analysis, and is significant in the validation group at the .01 level ($r = .32$). Similar interesting but unreliable results are found with the Self-Expression criterion.

The hypothesized correlations between having a Primary Interest Pattern and the Level and Outlets criteria are not observed, although suggestive relationships are found in one twelfth grade sample for the two latter.

(Insert Table VII-29 about here)

Nature of Work Experience in High School and Later Occupational Level and Outlets

No directional hypotheses were set up concerning the Nature of High School Work Experience and Occupational Level at age 25, and no relationships were established. Positive relationships between both Self-Employment and Auspices of Work in high school and the two Outlets criteria were hypothesized, were found in the validation analysis, but were supported in the cross-validation analysis only for Auspices and Self-Expression, with Self-Employment in high school and Self-Expression in work at age 25 barely failing to replicate in the second group. No significant correlations were found at the ninth grade.

Table VII-28
INVENTORIED INTEREST IN HIGH SCHOOL AND LATER OCCUPATIONAL LEVEL AND OUTLETS*

	Occupational Level			Utilization of Assets			Opportunity for Self-Expression		
Occ'l Attainment at Age 25	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Interest Inventoried in Grade	12	12	9	12	12	9	12	12	9
Interest Maturity (SVIB)	46	35	33	17	32	04	26	11	13
				+	+	+	+	+	+
Primary Interest Patterns	16	14	10	20	-02	-08	20	-08	-08

---

[*] See Table VII-1 for explanatory notes.
N for 9th grade group varies from 91 to 96; 8th grade group varies from 71 to 79.

Table VII-29
NATURE OF WORK EXPERIENCE IN HIGH SCHOOL AND LATER OCCUPATIONAL LEVEL AND OUTLETS*

Occ'l Attainment at Age 25	Occupational Level			Utilization of Assets			Opportunity for Self-Expression		
Nature of Wk. Exper. through Grade	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9
				+	+	+	+	+	+
Self-Employment	-04	10	-09	28	-02	-06	24	17	-08
				+	+	+	+	+	+
Auspices	06	09	-09	25	04	-09	21	26	-08

---

*See Table VII-1 for explanatory notes.
N for 9th grade group varies from 91 to 96; 8th grade group varies from 80 to 87.

It appears that the independence of work experience in senior high school, as shown by the auspices of employment, does have some relationship (r = .21 and .26) to believing that opportunity has been found for the expression of interests and the use of abilities in employment at age 25.

(Insert Table VII-30 about here)

Wisdom of Vocational Preferences and Later Occupational Level and Outlets

No relationships were hypothesized between Wisdom of Vocational Preferences in high school, as judged by economic or abilities factors, and Occupational Level at age 25;one, unsupported, was observed (Table VII-30). It was hypothesized that the various Wisdom measures would predict the Outlets criteria, but only one significant twelfth grade correlation was found, and that was not supported in the cross-validation. The one significant correlation in the ninth grade, not found at the twelfth, is difficult to understand.

Summary: Vocational Maturity and Later Occupational Level and Outlets

The findings reported in this section lead to the following conclusions concerning the prediction of young adult occupational level and outlets by means of high school vocational maturity measures:

1. Occupational information in senior high school is positively related to occupational level attained by age 25, when judged by knowledge of high school background and particularly of training and education needed; the latter type of information may also be related, along with supply and demand information, to the utilization of assets and to opportunity for self-expression in the occupation engaged in at age 25, but these last relationships found in one sample only need further substantiation. No ninth grade predictive validity was found for information and these criteria.

2. Planning to qualify for the high-school-preferred occupation is related to occupational level attained and to utilization of assets in the actual occupation at age 25 in the one group thus studied, in twelfth grade only, but

Table VII-30
WISDOM OF VOCATIONAL PREFERENCES IN HIGH SCHOOL AND LATER OCCUPATIONAL LEVEL AND OUTLETS*

Occ'l Attainment at Age 25	Occupational Level			Utilization of Assets			Opportunity for Self-Expression		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Wisdom of Voc'l Pref. in Grade	12	12	9	12	12	9	12	12	9
Socioecon. Acc.-1st Pref.	02	-23	05	+ 00	+ -11	+ -05	+ 07	+ -09	+ 14
Socioecon. Acc.-All Pref's.	02	-18	-07	+ 06	+ -13	+ -05	+ 08	+ -14	+ 14
Agreement: Abil.-1st Pref.	07	03	20	+ 11	+ 05	+ 13	+ 16	+ -14	+ 32
Agreement: Abil.-All Pref's.	18	08	14	+ 21	+ 16	+ 01	+ 17	+ -17	+ 11

---

*See Table VII-1 for explanatory notes.
N for 9th grade group varies from 91 to 96; 8th grade group varies from 80 to 87.

implementation of the preference in relevant high school activities is not.

3. Interest, assessed by the maturity scale of the Strong Vocational Interest Blank in grade 9 as well as grade 12, is related to young adult occupational level. It may perhaps, in twelfth grade, be related to the outlet criteria, but confirmation of these last relationships in other groups is needed. Having a primary interest pattern, i.e., interests very much like those of men in one or more families of occupations, is not related to the level and outlet criteria.

4. Work experience in senior high school, as assessed in this study for independence from the family, is reliably related to opportunity for self-expression in the young adult occupation, but not consistently to the other outlet nor to the level criterion, and self-employment also bears only a dubious, unconfirmed, relationship to these criteria. No predictive validity was found in ninth grade, using these criteria.

5. Wisdom of vocational preferences in high school is not reliably related to any of the occupational level or outlet criteria, whether judged by socio-economic or by psychological standards.

6. Predictable occupational level and outlet criteria, with operationally independent vocational maturity measures as the antecedent variables, are easily identified: occupational level at age 25 is clearly a predictable criterion, self-estimated opportunity for self-expression in the early adult occupation is also predictable by one vocational maturity measure, and self-estimated utilization of assets in the young adult occupation may prove, with further study, to be a predictable criterion.

Vocational Maturity and Position and Occupational Success and Satisfaction

The distinction between position and occupation, like that between occupation and career, being theoretically important, self-estimates of success and of satisfaction were obtained from each subject for each position occupied and each occupation pursued. Chapter V discusses these criteria, and the moderate intercorrelations which show that subjects were able to distinguish between them. This section reports the relationships between the high school vocational maturity measures and these young adult vocational criteria.

(Insert Table VII-31 about here)

Occupational Information in High School and Self-Estimated Position or Occupational Success and Satisfaction at Age 25

Only one relationship was hypothesized between Occupational Information in high school and self-estimated Position or Occupational Success and Satisfaction at Age 25: it was thought that knowledge of Hours Worked would be correlated with Position Satisfaction in a heterogeneous, generally middle and lower occupational level, population such as that sampled in this study. The hypothesis was not supported.

A number of other relationships are reported in Table VII-31, but only those between Training and Education information, in junior as well as in senior high school, and the two Occupational Satisfaction measures, are generally confirmed.

(Insert Table VII-32 about here)

Planning and Implementation in High School vs. Position or Occupational Success and Satisfaction

It was hypothesized that Planning to Qualify for the occupation preferred in high school would be positively related to self-estimates of Occupational Success and Satisfaction, but not to Position Success or Satisfaction. One of the three expected relationships was observed in both ninth and twelfth grades, as reported in Table VII-32 ($r = .30$ and .24, significant at the .01 level), and the other two just missed significance in twelfth grade; it does appear that high school planning for relevant vocational or professional preparation is related to the desire to continue in whatever occupation is engaged in at

Table VII-31
OCCUPATIONAL INFORMATION IN HIGH SCHOOL AND SELF-ESTIMATED POSITION OR OCCUPATIONAL SUCCESS AND SATISFACTION*

Succ. & Satisf. at Age 25	Position Success			Occ'l Success			Position Satisf.			Occ'l Satisf.-1			Occ'l Satisf.-2		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Occ'l Info. in Grade	12	12	9	12	12	9	12	12	9	12	12	9	12	12	9
Pref. Occ.															
H.S. Background	-05	01	13	08	01	02	08	14	03	15	-02	12	00	12	-07
Training & Education	-14	33	07	-05	00	-02	17	-08	11	30	22	20	19	20	-02
Supply & Demand	11	10	09	22	05	08	25	15	04	33	07	14	19	16	-21
Range of Info.-All Occ's.															
H.S. Background	-10	06	13	-03	01	-03	10	15	04	19	-02	16	05	12	-07
Training & Education	-05	28	08	-03	00	-04	18	03	06	26	20	21	17	25	00
Hours	08	-13	-03	20	06	11	+ -11	+ -07	+ -14	24	-22	10	04	-07	-01
Supply & Demand	00	05	14	07	08	02	14	16	04	28	12	08	22	18	-21

---

*See Table VII-1 for explanatory notes.
N for 9th grade group varies from 86 to 102; 8th grade group varies from 74 to 88.

Table VII-32
PLANNING AND IMPLEMENTATION IN HIGH SCHOOL IN RELATION TO SELF-ESTIMATED POSITION OR OCCUPATIONAL SUCCESS AND SATISFACTION*

	Position Success			Occ'l Success			Position Satisf.			Occ'l Satisf.-1			Occ'l Satisf.-2		
Succ. & Satisf. at Age 25	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Planning & Implementing in Grade	12	12	9	12	12	9	12	12	9	12	12	9	12	12	9
				+		+				+		+	+		+
Planning to Qual.	-02	--	03	19	--	13	16	--	03	30	--	24	17	--	02
Implementing in Relevant Activities	05	--	12	-02	--	08	08	--	05	00	--	17	-05	--	12

---

[*] See Table VII-1 for explanatory notes.
N for 9th grade group varies from 86 to 102.

age 25. The data did not permit replication in another group of the same age, so some caution is still called for in drawing this conclusion.

No relationships between Implementing the Vocational Preference in Relevant Activities were hypothesized, and none were observed.

(Insert Table VII-33 about here)

Inventoried Interest in High School and Position or Occupational Success and Satisfaction

No relationships were hypothesized between Interests Inventoried in High School and self-estimated Position or Occupational Success and Satisfaction At Age 25. Table VII-33 shows that the relationship between Interest Maturity in twelfth grade (but not in ninth), and Occupational Satisfaction as shown by the desire at age 25 to enter the present occupation if choosing over again, is reliably demonstrated. The other occupational satisfaction criterion is predicted in one twelfth grade group, in the same way, but without replication in the other or in the ninth grade. The possession of a Primary Interest Pattern is, as in other analyses, not consistently related to any of the criteria.

(Insert Table VII-34 about here)

Nature of Work Experience in High School and Position or Occupational Success and Satisfaction

High school Work Experience was not expected to be related to any of the Position or Occupational Success and Satisfaction At Age 25 criteria. Table VII-34 reports no replicated relationships, although Self-Employment in twelfth grade was significantly correlated with Position Satisfaction and Occupational Satisfaction as assessed by desire to continue in the current occupation, at age 25 in the exploratory analysis, and Auspices of Employment also revealed an unconfirmed relationship in the first group only. Neither work experience measure in ninth grade had predictive validity for these criteria.

(Insert Table VII-35 about here)

Table VII-33
INVENTORIED INTEREST IN HIGH SCHOOL AND SELF-ESTIMATED POSITION OR OCCUPATIONAL SUCCESS AND SATISFACTION*

Succ. & Satisf. at Age 25	Position Success			Occ'l Success			Position Satisf.			Occ'l Satisf.-1			Occ'l Satisf.-2		
	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19	9-19	8-19	9-19
Interest Inventoried in Grade	12	12	9	12	12	9	12	12	9	12	12	9	12	12	9
Interest Maturity (SVIB)	19	09	03	13	13	05	06	10	04	24	14	-02	24	25	01
Primary Interest Patterns	-13	06	04	-05	08	-04	09	-03	-21	14	04	-08	-01	18	-15

---

*See Table VII-1 for explanatory notes.
N for 9th grade group varies from 86 to 102; 8th grade group varies from 65 to 80.

Table VII-34
NATURE OF WORK EXPERIENCE IN HIGH SCHOOL AND SELF-ESTIMATED POSITION OR OCCUPATIONAL SUCCESS AND SATISFACTION*

Succ. & Satisf. at Age 25	Position Success			Occ'l Success			Position Satisf.			Occ'l Satisf.-1			Occ'l Satisf.-2		
Nature of Wk. Exper. through Grade	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9
Self-Employment	08	02	-08	04	15	-03	23	-06	-13	11	10	-01	30	-07	-08
Auspices	12	02	-08	10	17	00	13	-14	-20	04	10	00	25	11	-11

---

[*] See Table VII-1 for explanatory notes.
N for 9th grade group varies from 86 to 102; 8th grade group varies from 74 to 87.

Table VII-35
WISDOM OF VOCATIONAL PREFERENCES IN HIGH SCHOOL AND SELF-ESTIMATED POSITION OR OCCUPATIONAL SUCCESS AND SATISFACTION*

Succ. & Satisf. at Age 25	Position Success			Occ'l Success			Position Satisf.			Occ'l Satisf.-1			Occ'l Satisf.-2		
Wisdom of Voc'l Pref. in Grade	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9	9-19 12	8-19 12	9-19 9
Socioecon. Acc.- 1st Pref.	15	-10	05	17	06	13	04	-16	01	09	-19	-05	18	-26	15
Socioecon. Acc.- All Pref's.	10	-07	07	27	00	12	04	-09	01	12	-20	-05	10	-21	10
	+	+	+												
Agreement: Abil.- 1st Pref.	02	-15	02	19	-26	19	21	-16	21	17	01	19	23	04	27
	+	+	+												
Agreement: Abil. All Pref's.	02	-08	10	15	-17	19	23	-18	14	27	01	10	28	16	27

---

*See Table VII-1 for explanatory notes.
N for 9th grade group varies from 86 to 102; 8th grade group varies from 74 to 88.

Wisdom of Vocational Preferences in High School and Position and Occupational Success and Satisfaction

Table VII-35 shows that Wisdom of Vocational Preferences, judged by Socioeconomic Accessibility standards, is unrelated to success and satisfaction criteria not only when assessed as early as the ninth grade, but even when assessed in the twelfth grade, not long before graduation from high school and entry into employment or professional training,as the one significant correlation in the exploratory analysis is unreplicated in validation. Hypothesized relationships between Agreement between Actual and Required Abilities, for the preferred and for all occupations of interest, were not observed in either sample. Some promising correlations observed in the exploratory sample were not replicated in the validation sample at the same grade level, but two are repeated in the same group as ninth graders, when occupational satisfaction is judged by either method.

Summary: The Prediction of Self-Estimated Position or Occupational Success and Satisfaction

The findings concerning the vocational maturity measures, which were found to have factorial validity, as predictors of self-estimates of position and occupational success and satisfaction in early adulthood, lead to the following conclusions:

1. Occupational information, specifically training and education requirements for the occupation preferred when in senior, and even when in junior high school, is related to occupational satisfaction when 25 years old: other relationships between occupational information and occupational or position success and satisfaction criteria were not consistently observed.

2. Planning in junior and in senior high school, as measured by planning to qualify for the then preferred occupation, is apparently related to occupational satisfaction at age 25. This validated *a priori* hypothesis could not be cross-validated on a second group, and should be further studied. Implementing a preference by participating in relevant high school activities was not related

to success or satisfaction criteria.

3. Interests, measured by the possession of a primary interest pattern in high school, are not related to any position or occupational success or satisfaction criteria at age 25, but interest maturity as measured by the Strong Vocational Interest Blank in twelfth grade (but not in ninth) is reliable related to occupational satisfaction at age 25.

4. The nature of work experience during the high school years, as assessed by working for oneself or others, and by the independence of the auspices of employment, is unrelated to position or to occupational success and satisfaction at age 25.

5. Wisdom of vocational preferences in high school, judged by socioeconomic standards, is not related to position or to occupational success and satisfaction in the middle twenties, although better measures of agreement between actual and required abilities may prove to be related to later occupational success and satisfaction.

6. The prediction data show that, of the various position and occupational success and satisfaction criteria assayed in this analysis, occupational satisfaction, sometimes as assessed by desire to continue in the current occupation, and particularly as judged by desire to choose the same occupation if beginning over again, is the most predictable by means of vocational maturity measures taken in high school.

Summary: Vocational Maturity in High School and Success in Young Adulthood

In this chapter data have been reported on the relationships between vocational maturity measures made in high school, specifically in ninth (one sample) and in twelfth grade (two samples), and a series of criteria of vocational success and satisfaction collected when the subjects of the study were about seven years out of high school, about 25 years old.

The vocational maturity measures were those which, in a study reported in another monograph, summarized in part in Chapter IV, had the heaviest factor loading in an analysis of all the elements or smallest units of a large number of presumed measures of vocational maturity (readiness for vocational planning and decision-making). The vocational success and satisfaction measures were designed to obtain occupational criteria of the more commonly used objective and subjective types. They sought also to assess success and satisfaction in the handling of a career, i.e., of the series of educational and occupational position choices with which society confronts boys and young men as they leave high school and progress into and through college and the labor market.

One sample of high school boys, 103 of 140 surviving original ninth graders in Middletown in 1951-52, provided data when in twelfth grade on which it was possible 1) to test *a priori* hypotheses justified by theory or by earlier research, and 2) to explore relationships which might yield additional hypotheses. The second sample, consisting of the original eighth grade boys of the same year, 88 of the 116 boys who entered ninth grade in Middletown the following year, and who supplied needed data when in twelfth grade, served as 1) a cross-validation group for *a priori* hypotheses tested in the first sample, or as 2) a validation group for hypotheses set up as a result of exploratory work with the first sample.

The first sample also supplied data collected when they were in ninth grade which made it possible to check, once more, the predictive validity of the vocational maturity measures, and to ascertain whether they had such value when the subjects were *entering* high school.

In the brief summary of the significant findings which follows, the first paragraphs consider the predictive validity of vocational maturity measures in ninth and twelfth grades, and the last deal with the vocational behaviors of young adult men which can be predicted by vocational maturity measures in the high school years. More detailed summaries have been made at the end of each section.

The Valid Measures of Vocational Maturity

1. Occupational information in junior and senior high school is best measured, according to the earlier factor analysis, by knowledge of the high school background and of the later training and education requirements, and by supply and demand information. These presumably construct-valid measures of vocational maturity, and particularly the measure of information concerning post-high-school training and education requirements, have been shown by this study to have some predictive validity for some measures of early adult career development, career success and satisfaction, educational attainment, and occupational success and satisfaction.

2. Planning for, and implementation of, vocational preferences in high school are best measured, the factor analysis has shown, by an interview-derived measure of planning to qualify for the preferred occupation, and a questionnaire-derived measure of participation in relevant high school activities. The planning measure of vocational maturity has been shown here to have the hypothesized predictive validity for a number of measures of early adult career development, career success and satisfaction, and for occupational success and satisfaction in both ninth and twelfth grades in the one sample for which such predictors were available. However, data for cross-validation were not available as they were for the other predictor variables. The implementation measure does not have predictive validity, perhaps because too many variables other than vocational relevance determine participation in extra-curricular activities.

3. Interest, as measured in high school by the interest maturity scale of the Strong Vocational Interest Blank, was a third measure which emerged in the factor analysis of presumed vocational maturity indices as one with construct

validity. It proved also to have consistent predictive validity even as early as ninth grade for a number of career development, career success and satisfaction, and occupational success and satisfaction criteria at age 25. The construct valid measure of primary interest patterning did not, however, have the expected predictive validity for any of these criteria.

4. The nature of high school work experience was best measured, according to the earlier factor analysis, by measures of the self-employment and of the independence of the auspices of employment. When assessed in twelfth grade the former has been shown, in this study, to be consistently related to career satisfaction at age 25, and it may be related to certain other measures of floundering or trial and of occupational level and outlets, but these last relationships are not reliable for they were not confirmed in the second sample. The independence of auspices in senior high school employment measure predicts opportunity for self-expression in early adult employment, but has only questionable relationships with certain other career development, career satisfaction, and occupational success criteria at age 25. The only significant ninth grade relationship is that between junior high school employment and post-high-school educational improvement, which is negative.

5. The wisdom of vocational preferences in the high school years was best assessed, in the factor analytic study which preceded this prediction study, by measures of the agreement of the preferred occupations with the parental occupational level and with the tested abilities of the subject himself. The former measures have the conceptual defect of not taking into account differences in parent-child abilities and opportunities which may make different occupational levels appropriate. The latter have the defect of not taking socioeconomic resources and deficiencies into account. The socioeconomic realism measures have been found to lack predictive validity, regardless of the early adult vocational criteria used. The ability-realism measures lack predictive validity for most

of the early adult vocational criteria used, but do predict the best career development (realism of reasons) criterion when all the occupations in which the student is interested as a twelfth grader (but not as a ninth grader) are taken into account, and data from one sample suggest they may be related to floundering and to occupational satisfaction during the post-high-school years.

The Criteria of Early Adult Vocational Success and Satisfaction

The criteria of career development and occupational status at age 25, numerous and diverse conceptually and empirically, yield several which are predicted by the best of the high school vocational maturity measures, with reliable and replicated correlations of about .20 to .45. These are the _career behavior_ scale of realism of reasons for changing positions and the scale of improvement of educational status, _vocational coping behavior_ dichotomized as stabilizing or floundering (judgements of post-high-school position changes), _educational attainment_ as shown by the scale of educational level attained after high school, and _occupational attainment_ as shown by the scale of occupational level attained at age 25 and by the self-estimates of occupational satisfaction. Less clearly predictable, and therefore less satisfactory empirically as criteria of vocational success, are the _occupational_ criteria, self-estimates of the utilization of assets and of opportunity for self-expression in the occupation pursued at age 25.

It is noteworthy that both novel career and standard occupational criteria are predictable, generally by the same antecedent variables: the choice between these diverse types of criteria must, appropriately, rest on conceptual grounds. For some purposes it will be _career development_ which it is most relevant to judge and for others it will be _occupational_ criteria which are of interest.

Conclusions. The major findings of this chapter for the purposes of this study, are as follows:

1. _Floundering_ after high school, measured by a scale based on the reasons

given for making each move, and by more global judgement of vocational coping behavior as shown by the appropriateness of moves, can be predicted, by measures of vocational maturity (operationally defined as information about training and education for the preferred occupation, supply and demand for the same, interest maturity, and perhaps planning for qualifying for the preferred occupation) made while boys are still in high school, in twelfth grade and even, to a lesser degree, in ninth grade.

2. Occupational criteria, some of them relatively independent of the career criteria, are also predictable on the basis of vocational maturity in high school.

CHAPTER VIII

STANDARD MEASURES OF STATUS AND ACHIEVEMENT AS PREDICTORS OF EARLY ADULT VOCATIONAL BEHAVIOR

This chapter presents the results of correlating a number of standard measures or assessments of personal status and achievement in high school with measures of post-high-school vocational behavior. Some of these standard measures are studied again as concomitants. The predictor variables, discussed in more detail in Chapter IV, include intelligence, parental occupational level, vocational aspiration level, curriculum, grades, age, peer acceptance, and school and out-of-school activities. The criterion variables, described in detail in Chapter V, include scales of post-high-school career behavior such as realism of reasons for changing positions, judgements of floundering, trial, instrumentation, and establishment behavior from school-leaving to about age 25, a variety of career statistics such as number of position changes and educational level attained, and several occupational behaviors or statuses such as occupational level attained and self-estimated occupational success and satisfaction.

Some standard variables collected during the junior- and senior-high-school years, and included in the analysis of predictive validity, are not included in the tables which follow nor in the accompanying text but merit listing and brief comment here.

Redundant variables are not reported, when their redundancy seemed not to be counterbalanced by additional information. The socioeconomic level of the house or apartment in which the subjects lived when in junior high school, a Warner-type measure, was not repeated in twelfth grade, nor are its correlations reported here, for it adds nothing to the understanding derived from the other measure of socioeconomic level (Parental Occupational Level) and does not measure this characteristic as well. On the other hand, the scores derived from junior- and senior-high-school intelligence tests are reported and discussed, despite the correlation between socioeconomic status and tested intelligence, and their frequently similar predictive values, because the two measures are conceptually and operationally different.

Similarly, school and out-of-school activities, treated in several ways to take into account the number of years in which they are pursued or other such refinements, differed so little conceptually and operationally as well as empirically from the simpler measures reported here that they are not considered.

Invalid variables studied because they often are studied, but lacking predictive validity, do not require detailed consideration and should not take up space in tables or text. It suffices to report here that birth order (first versus not-first-born), Protestantism or Catholicism, urban-rural residence (unsatisfactory as all the rurals lived near the town), and the expression of a vocational aspiration for the boy by his parents (most did so), predicted practically no young adult criteria. The few statistically significant correlations with these variables were unreplicated and irrational.

The design of the analysis is like that used in the preceding chapter, in which *a priori* hypotheses are tested on one twelfth grade group which also serves to explore other unhypothesized relationships and thus to set up new hypotheses, and the proven correlations can be rechecked or the hypothetical relationships verified on a second group of the same background, at the same developmental stage. In this analysis, moreover, the availability of appropriate data makes it possible to carry out the investigation of junior-high-school predictions with both groups, one when in eighth grade, the other when in ninth grade.

Standard Variables in School and Young Adult Career Behavior

The standard predictor variables on which data were collected when the two samples were in school, one group first in eighth and the other first in ninth grade and then both groups again in twelfth grade, are listed in the left-hand side of Table VIII-1, and the scaled behaviors which were developed as possible career development criteria for the post-high-school years are listed across the top. The rows and columns are organized to make it easy to compare the correlations in the two different groups of subjects, first between a twelfth grade predictor and a young adult criterion, and then between the same predictor in the eight or ninth grade and the same criterion in early adulthood. This makes possible the validation or cross-validation of findings in a different group at the same grade level, and the repetition of the validation process in the same subjects at the younger level.

(Insert Table VIII-1 about here)

Intelligence

Intelligence, tested in twelfth grade with a standard group test of verbal reasoning (the Differential Aptitude Test), was expected to be positively correlated with the scaled criteria except Scale IIIA, Goodness of Fit in Terms of Ability, at age 25, this one exception being made because of the failure of this latter measure to show any relationships to other criteria in preliminary analyses. For Scales II, Realism of Reasons for Changing Positions and VB, Improvement in Educational Status, the consistently significant relationships between twelfth grade intelligence and young adult career behavior are between .29 and .48. The Total Career Development score, an additive combination of the interrelated scales, is rather less well predicted, presumably because it is diluted by invalid scales. Essentially similar results ($r = .29$ to .49) are observed in both the eighth and ninth grade samples: intelligence begins to function as a predictor of some post-high-school career behavior even before entry into senior high school.

TABLE VIII-1
STANDARD SCHOOL VARIABLES AND SCALED CAREER BEHAVIORS TO AGE 25 EXPLORATORY AND VALIDATION SAMPLES*

Scaled Career Behaviors	I-Equity		II-Reasons		IIIA- Abilities		IIIB- Interests		IV-Goal		VA- Socioecon.		VB- Educ'l		Total CD Score	
	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19
Intelligence																
Gr. 12	+ 11	+ 26	+ 29	+ 39	-05	08	+ 00	+ 11	+ 10	+ -07	+ 12	+ -03	+ 36	+ 48	+ 27	+ 33
Gr. 9 or 8	+ 18	+ 26	+ 29	+ 41	-04	01	+ 05	+ 04	+ 09	+ -12	+ 13	+ -05	+ 29	+ 49	+ 29	+ 29
Parental Occ'l Level																
Gr. 12	+ 11	+ -07	+ 33	+ 15	05	14	+ -04	+ -05	08	-03	14	-24	25	47	27	13
Gr. 9 or 8	+ 09	+ -15	+ 34	+ 10	-04	10	+ -03	+ -04	03	01	14	-21	26	47	24	10
Voc'l Aspir. Level																
Gr. 12	+ 03	+ 12	+ 29	+ 32	-04	13	-06	18	+ -04	+ 12	+ 14	+ 06	+ 49	+ 39	+ 23	+ 37
Gr. 9 or 8	+ 15	+ -02	+ 29	+ 12	-09	26	01	13	+ 02	+ 05	+ 08	+ 03	+ 30	+ 36	+ 22	+ 25
Curriculum																
Gr. 12	+ 22	+ 06	+ 44	+ 44	-02	10	+ 02	+ 13	+ 06	+ 00	+ 06	+ -16	+ 41	+ 66	+ 36	+ 34
Gr. 9 or 8	+ -04	+ 03	+ 23	+ 27	09	12	+ -10	+ 06	+ 01	+ -08	+ 08	+ -16	+ 16	+ 54	+ 11	+ 22
G.P.A.																
Gr. 12	+ 27	+ 30	+ 53	+ 58	-14	12	+ 08	+ 28	+ 08	+ -01	+ 15	+ -10	+ 52	+ 67	+ 44	+ 51
Gr. 9 or 8	+ 27	+ 19	+ 33	+ 50	-14	09	+ 10	+ 28	+ 10	+ -06	+ 10	+ -08	+ 40	+ 65	+ 34	+ 43
Age-in-Grade																
Gr. 12	-05	-04	-27	-24	03	-01	02	03	-10	09	-17	-04	-31	-21	-24	-12
Gr. 9 or 8	06	-19	-27	-25	03	-08	-01	04	-11	10	-19	-08	-32	-29	-26	-20
Peer Acceptance																
Gr. 9 or 8	14	08	10	19	-13	17	07	24	-09	-02	02	-02	-09	29	-01	26
# Sch. Activities																
Gr. 12	+ 17	+ 18	+ 28	+ 39	-14	02	+ 12	+ 27	+ 03	+ -01	+ 07	+ -11	+ 19	+ 44	+ 22	+ 34
Out-of-Sch. Act.: Voc'l																
Gr. 12	+ 07	+ -10	+ 09	+ -08	-02	18	+ 01	+ -12	+ -08	+ 06	+ -10	+ 01	+ -16	+ -22	+ -05	+ -07
Out-of-Sch. Act.: Avoc'l																
Gr. 12	+ 07	+ -02	+ 22	+ 13	-14	-05	+ 13	+ 13	+ 08	+ -13	+ 02	+ -14	+ 25	+ 32	+ 20	+ 07

---

*N for 9th grade group varies from 91 to 103, 8th grade group varies from 82 to 88.

Parental Occupational Level

Parental occupational level, rated on Hamburger's revision of the Warner Occupational Scale when subjects were in the twelfth grade, shows the hypothesized correlation in one group, unreplicated in the other, (.33 and .15) with Scale II, Realism of Reasons for Changing Positions. Scale VB, Improvement in Educational Status is, however, well predicted by parental occupational level, in both groups and at both grade levels (.25 to .47). It has frequently been shown that boys with parents of higher social status obtain more education by the time they are 25, and that socioeconomic status has predictive validity as early as eighth and ninth grades.

Vocational Aspiration Level

The occupational level to which a boy aspires in twelfth grade is about as highly correlated ($r = .29$ to .49) with career behavior after high school as are intelligence and social status, and with the same two types of career behavior, Realism in Changing and Educational Improvement. These also were hypothesized relationships, and the variable has about equal predictive validity even when assessed as early as ninth grade, although apparently not as early as the eighth grade.

Curriculum

The curriculum (Regents or college preparatory vs. local non-college preparatory pursued in the twelfth grade also has substantial hypothesized correlations with the Realism and Educational Improvement of career behavior during the late teens and early twenties (.41 to .66). This variable has less predictive validity during the junior-high-years, when the educational sorting-out process is still going on (a non-significant r of .16 for the ninth graders when Educational Improvement is the criterion, but significant r's of .23 to .54 in other instances).

Grades in High School

The predictive validity of the standard status and achievement variables for the Realism of Reasons for Changing Positions and Educational Improvement criteria begins to be almost monotonous, as might be anticipated from the intercorrelations of these predictor measures: the validity coefficients in the case of high-school grade-point averages are .52 to .67, and for junior-high-school grade-point average they are understandably lower, but still range from .33 to .65. Career Development Scale I, Gain or Loss in Equity with Position Change, is also predicted by grade-point average, in both samples and at both levels, and the Total Career Development score is therefore also well predicted.

Age

In samples such as these, age is associated with negative characteristics, for it is the older boys in a class who are the duller students, less motivated by school experience. The negative correlations (-.21 to -.32) between age when in eighth, ninth, or twelfth grade and Realism of Reasons for Changing Positions and Educational Improvement after high school, are therefore not surprising.

Peer Acceptance

The measure of peer acceptance was obtained only when the subjects were in junior high school. Although significant correlations were obtained for the eighth graders with some criteria, none were hypothesized, and the relationship with Educational Improvement after high school ($r = .29$, significant at the .01 level) can be considered to be a basis only for further study.

School and Out-of-School Activities

The measures of participation in activities in and out of school, the letter being separately treated in vocational and avocational categories, were developed only for the twelfth grade level when participation over several years might be most meaningful. The school activities measure (the total number engaged in, the best of the several attempted ways of assessing such data) was, as hypothesized, reliably related to Realism of Reasons for Changing Positions and to Improvement in Educational Status during the post-high-school years (r = .19 to .44, significant mostly at the .01 but in one case at the .05 levels). The Equity Change scale had the expected positive relationship in the validation sample and barely failed to replicate in the cross-validation sample, perhaps because of the smaller number of subjects.

Participation in out-of-school vocational activities proved to have no predictive validity for these career development criteria, but participation in avocational out-of-school activities was significantly and consistently related to Educational Improvement during the post-high-school years (r = .25 and .32).

Summary: Standard Variables in School and Early Career Behavior

The findings reported in this section lead to the following conclusions:

1. Intelligence, parental occupational level, vocational aspiration level, curriculum pursued, grade-point average, age in a given grade, and participation in school and out-of-school avocational activities are all related to young adult career development as measured by realism of reasons for changing positions, and by improvement in educational status after leaving high school. These relationships are generally found not only in twelfth grade, but even when the data are collected in eighth or ninth grade (participation in activities was not studied at the lower grade levels); they are generally somewhat lower in junior high school than in grade 12, partly because some of the sorting-out process, as in curriculum pursued, has only begun at that time. Peer acceptance, and participation in vocationally related, out-of-school activities, are unrelated to later career development as measured by these scales.

2. The scales which have the most utility for measuring young adult career behavior, using predictability as the basis for determining utility and assuming

their conceptual adequacy, are Scales II and VB, Realism of Reasons for Changing Positions and Improvement in Educational Status. Scale I, Equity Change, also has some utility, largely because of its relationship to grade-point average in junior and senior high school.

Standard Variables in High School and Stabilizing versus Floundering After High School

The standard measures of status and achievement in junior and senior high school were analyzed in relation to the judged floundering or generally stabilizing (including trial and instrumental) career behavior of the two samples during their post-high-school years. The results appear in Table VIII-2.

(Insert Table VIII-2 about here)

Intelligence

Intelligence, tested in twelfth grade, is related to positive, stabilizing (including trial and instrumental) career behavior during the years immediately following high school in the sample on which the *a priori* hypothesis was tested, whether career behavior is judged by internal or external, by socioeconomic or by psychological standards. The relationship is replicated in the other twelfth grade group, however, only for the external socioeconomic judgement, and that with a correlation which is very low and barely significant. That the positive findings for the first sample are supported even when the predictor variables for that group are studied earlier, in ninth grade, lends substantial support to the positive findings and to the original hypothesis, but raises important questions concerning the nature of the second (8-8 and 8-19) sample. These will be considered after consideration of other variables.

Parental Occupational Level

The socioeconomic level of the subjects' parents (Parental Occupational Level), both when in twelfth grade and earlier in junior high school, is

TABLE VIII-2
STANDARD SCHOOL VARIABLES AND STABILIZING OR FLOUNDERING AFTER HIGH SCHOOL EXPLORATORY AND VALIDATION SAMPLES*

Stabilizing-Floundering Judged / School Status or Achievement	External Sociological 9-19	External Sociological 8-19	External Psychological 9-19	External Psychological 8-19	Internal Sociological 9-19	Internal Sociological 8-19	Internal Psychological 9-19	Internal Psychological 8-19
Intelligence	+	+	+	+	+	+	+	+
Gr. 12	28	19	28	05	22	14	21	08
	+	+	+	+	+	+	+	+
Gr. 9 or 8	24	17	21	04	21	09	17	03
Parental Occ'l Level	+	+	+	+	+	+	+	+
Gr. 12	24	-08	22	-04	26	-07	28	-05
	+	+	+	+	+	+	+	+
Gr. 9 or 8	21	-09	20	-04	25	-04	27	-02
Voc'l Aspiration Level	+	+	+	+	+	+	+	+
Gr. 12	15	32	13	29	13	17	13	19
	+	+	+	+	+	+	+	+
Gr. 9 or 8	18	11	14	01	12	08	15	06
Curriculum								
Gr. 12	26	13	24	13	21	05	21	04
Gr. 9 or 8	27	20	24	06	27	18	27	09
G.P.A.	+	+	+	+	+	+	+	+
Gr. 12	28	20	21	18	23	11	22	16
	+	+	+	+	+	+	+	+
Gr. 9 or 8	16	19	12	15	12	01	14	08
Age-in-Grade								
Gr. 12	-12	-12	-11	-01	-13	-03	-12	-01
Gr. 9 or 8	-12	-26	-10	-10	-12	-15	-11	-12
Peer Acceptance								
Gr. 9 or 8	15	35	04	31	07	28	04	25
# Sch. Activities	+	+	+	+	+	+	+	+
Gr. 12	25	24	22	25	13	13	21	08
Out-of-Sch. Act.: Voc'l	+	+	+	+	+	+	+	+
Gr. 12	22	03	26	15	18	-01	18	16
Out-of-Sch. Act.: Avoc'l	+	+	+	+	+	+	+	+
Gr. 12	27	-02	25	07	20	03	22	08

---

*N for 9th grade group = 103, 8th grade group = 85.

related to stabilizing-floundering behavior in early adulthood, as hypothesized, in the cross-validation sample. The data resemble those for intelligence, with which parental occupational level is correlated .27, except that the correlations in the 8-8 and 8-19 analyses are consistently negligible.

Vocational Aspiration Level

The boy's level of vocational aspiration (Vocational Aspiration Level) when in twelfth grade is not related to early career stabilization or floundering in the first sample, but is related in the hypothesized way in the second sample, particularly when judged from an external frame of reference. In neither sample is the junior-high-school vocational aspiration level so correlated.

Curriculum

Enrollment in a Regents or non-Regents program in ninth as well as in twelfth grade is related as hypothesized to early career stabilizing behavior in the validation sample, but this is not replicated in cross-validation. This variable operates as do intelligence and socioeconomic level, with which it is of course correlated.

Grade-Point Average and Age-in-Grade

Grades in high school are clearly related in the hypothesized way to early career stabilization in the first sample. They may also be in the second group, but less clearly so. Grades earned in junior high school, however, appear to have no such predictive validity. Age-in-Grade, however, shows no consistent relationship to this criterion.

Peer Acceptance

Peer acceptance was assessed only in junior high school. Table VIII-2 shows that it has no predictive validity for the first sample, but that it related to stabilizing behavior in the early career in the second sample, particularly when an external frame of reference is used in judging this behavior.

School and Out-of-School Activities

The number of school activities engaged in is related in the hypothesized way, positively and in both samples, to stabilizing early career behavior, when an external or objective frame of reference is used in judging careers.

Out-of-school activities, both vocational and avocational, are related to this career criterion in the first sample, using both the external and the internal frames of reference, but not in the second sample.

Summary: Standard School Variables and Stabilizing Career Behavior

The findings presented in this section lead to the following conclusions and to some speculation concerning the relationships between standard measures of school status and achievement and judged stabilizing or floundering in the young adult career:

1. In one sample, the original ninth graders of 1951-52, intelligence, parental occupational level, curriculum pursued, grades in high school, and participation in school and out-of-school activities are consistently related as hypothesized to stabilizing career behavior during the post-high-school years, but vocational aspiration level and peer acceptance have no such predictive validity. Neither does age-in-grade.

2. In the second sample, the eighth graders of 1951-52 who entered Middletown High School the following year and for whom all needed data were available until age 25, a number of the above variables did not have predictive validity: intelligence had less validity (perhaps .19, compared to .28), parental occupational level had none, curriculum had none, and out-of-school activities had none. On the other hand, in the second sample two variables which lacked predictive validity for the first sample did have moderate predictive validity: vocational aspiration level when in grade 12, and peer acceptance when in eighth grade, were related to early career stabilization. So, as in the first sample, are grades (to a lesser degree) and school activities.

3. The differences between the valid predictor variables for the two samples appear to be classifiable as status and achievement variables for the original ninth grade boys, and aspiration and acceptability variables in the original eighth grade boys. Intelligence and getting good grades help in getting off to a good start in a career in both samples, but it would appear that family background makes a difference in one group and that personality matters in the other. This finding may require reconsideration, in a later chapter, of conclusions concerning the predictive validity of the vocational maturity measures.

4. Of the several frames of reference used in judging floundering and stabilizing behavior during the post-high-school career, the external appears more predictable by these conventional adolescent variables, and socio-economically based standards appear more predictable than do psychologically based standards.

Standard School Variables and Post-High-School Employment History

In the section, the standard school status and achievement measures taken in junior and in senior high school are examined in relation to the employment history during the years from leaving high school until about age 25. The usual exploratory, validation, and cross-validation design is used.

(Insert Table VIII-3 about here)

Intelligence

None of the young adult employment history variables is predicted, from either junior or senior high school, by intelligence test scores.

Parental Occupational Level and Curriculum Pursued

The only employment history measure reliably predicted by parental socio-economic level was the unhypothesized negative relationship of more than -.40 with Months of Self-Support after leaving high school, and that was observed

TABLE VIII-3
STANDARD SCHOOL VARIABLES AND POST-HIGH-SCHOOL EMPLOYMENT HISTORY EXPLORATORY AND VALIDATION SAMPLES*

Post-High-School Employment History	Number of Moves		Times Unemployed		Months Unemployed		Self-Support	
School Status or Achievement	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19
Intelligence Gr. 12	-05	-11	12	09	$\overline{10}$	$\overline{04}$	14	-08
Gr. 9 or 8	-02	-10	18	00	$\overline{16}$	$-\overline{01}$	17	-10
Parental Occ'l Level Gr. 12	$-\overline{15}$	$-\overline{13}$	$-\overline{16}$	$\overline{11}$	$-\overline{12}$	$\overline{16}$	-07	$-\underline{\underline{41}}$
Gr. 9 or 8	$-\overline{08}$	$-\overline{15}$	$-\overline{\underline{18}}$	$\overline{06}$	$-\overline{14}$	$\overline{14}$	-03	$-\underline{\underline{43}}$
Voc'l Aspiration Level Gr. 12	-06	-16	-02	-03	$-\overline{03}$	$\overline{02}$	09	-04
Gr. 9 or 8	-05	-08	-15	07	$-\overline{16}$	$\overline{06}$	03	-05
Curriculum Gr. 12	-13	$-\underline{\underline{30}}$	-08	-13	$-\overline{07}$	$-\overline{10}$	-03	$-\underline{\underline{28}}$
Gr. 9 or 8	07	-09	02	09	$\overline{00}$	$\overline{06}$	$\underline{21}$	$-\underline{\underline{30}}$
G.P.A. Gr. 12	$-\underline{21}$	$-\underline{24}$	-07	-06	$-\overline{05}$	$-\overline{10}$	-02	-11
Gr. 9 or 8	-17	-19	08	-02	$\overline{10}$	$-\overline{04}$	-05	-17
Age-in-Grade Gr. 12	11	09	05	01	06	-02	$-\underline{\underline{36}}$	11
Gr. 9 or 8	11	05	04	-04	05	01	$-\underline{\underline{34}}$	08
Peer Acceptance Gr. 9 or 8	01	-01	-18	02	-17	-10	-14	-06
# Sch. Activities Gr. 12	$\overline{00}$	$-\overline{07}$	$-\overline{\underline{19}}$	$\overline{08}$	$-\overline{\underline{22}}$	$\overline{04}$	07	-14
Out-of-Sch. Act.: Voc'l Gr. 12	$\overline{09}$	$\overline{09}$	$-\overline{\underline{18}}$	$-\overline{\underline{\underline{31}}}$	$-\overline{13}$	$-\overline{\underline{\underline{27}}}$	-13	$\underline{25}$
Out-of-Sch. Act.: Avoc'l Gr. 12	$-\overline{08}$	$\overline{00}$	$-\overline{\underline{19}}$	$\overline{01}$	$-\overline{\underline{22}}$	$\overline{09}$	09	05

---

*N for 9th grade group = 103, 8th grade group = 88.

only in the original eighth graders, at both twelfth and eighth grade levels. Curriculum pursued shows the same relationships.

Vocational Aspiration Level and Peer Acceptance

Neither level of vocational aspiration, measured in both junior and senior high school, nor peer acceptance when in junior high school, yields any significant correlations with the employment criteria, although they have been seen to be related interestingly to career criteria in the original eighth graders.

Grade-Point Average and Age-in-Grade

Grade-point average in senior high school, but not in junior high school, is negatively related to Number of Position Changes or moves during the post-high-school years, in both exploratory and validation groups. The coefficients are in the twenties, and significant only at the .05 level. No other grade-employment relationships are observed.

Age-in-Grade is also a non-predictor, except for moderate negative correlations (-.36 and -.34) with Self-Support after high school in the original ninth grade sample only, but this is predictable not only from the twelfth grade but earlier from the ninth grade at the .01 level. The more overage these boys were, the less time they were self-supporting after high school. But this was not true of overage in the original eighth graders.

School and Out-of-School Activities

The number of school activities and the number of avocational out-of-school activities participated in were slightly correlated, negatively as hypothesized, with the Unemployment measures but only in the case of the original ninth graders. Out-of-school activity, when vocational in nature, was rather consistently negatively correlated with the same Unemployment criteria, as expected, particularly in the second sample, and positively with Self-Support in the same original eighth grade group.

Summary: Standard School Variables and Employment History

The findings just reported lead to the following conclusions:

1. Intelligence, vocational aspiration level, and peer acceptance in junior or senior high school do not predict the employment history variables studied in this analysis.

2. In both samples, grade-point average in high school, and participation in out-of-school activities which are vocational in nature, do tend to predict the young adult employment history. The former variable is slightly related in a negative way to the number of moves and the latter similarly is related to unemployment.

3. In the first sample only, age-in-grade, number of school activities, and number of avocational out-of-school activities, are negatively related, the first to self-support and the last two to employment. In the second sample, only socioeconomic status and curriculum are negatively related to number of moves, and out-of-school vocational activities are positively related to self-support.

4. Of the criteria, only number of months of self-support is at all frequently and consistently predicted by these standard school variables, although number of times unemployed shows a few promising relationships, one of which is consistent.

5. The differences in predictor variables for the two samples again raise the question of differences in the samples. The negative correlations between parental occupational level and curriculum, as predictors, and months of self-support after high school, in the original eighth graders only, cannot be artifacts produced by differences in educational attainment. Comparisons of the two groups show similarity in socioeconomic status and in intelligence.

There were, however, more Catholics in the original ninth grade group, as the local parochial school regularly sends a number of students to the ninth grade in the public school. This means that the ninth graders probably included a larger number who needed more help in making wise choices of curriculum and courses than did the eighth grade sample. In the long run the two groups obtained equal amounts of further education, in which the original eighth graders earned somewhat better quality-grade-point averages, whether as a function of a better start in high school or for other reasons. The correlations between Catholicism or Protestantism and educational-level-attained or quality-grade-point averages were virtually zero.

Standard School Variables and Post-High-School Educational Attainment

The conventional measures of school status and achievement were correlated also with three measures of post-high-school educational attainment, with results shown in Table VIII-4.

(Insert Table VIII-4 about here)

Intelligence and High School Grades

Intelligence in both junior and senior high school, Table VIII-4 reveals, correlates, as hypothesized, to a moderate degree with the Level of Education attained by age 25 in both samples (r = .43 to .52). It shows similar relationships with Quality-Grade-Point Average in college and other post-high-school education, all significant at the .01 level. It is noteworthy that eighth and ninth grade test scores predict as well as twelfth grade scores. The same may be said of high-school grade-point average, but more emphatically.

Parental Occupational Level

Parental socioeconomic level, as judged by occupation, also correlates

TABLE VIII-4
STANDARD SCHOOL VARIABLES AND POST-HIGH-SCHOOL EDUCATIONAL ATTAINMENT EXPLORATORY AND VALIDATION SAMPLES*

Post-High-School Education / School Status or Achievement	Educ'l Level		Parent Comparison		College-Grade-Point Average	
	9-19	8-19	9-19	8-19	9-19	8-19
Intelligence						
Gr. 12	+ 49	+ 52	12	01	+ 50	+ 35
Gr. 9 or 8	+ 43	+ 52	15	-01	+ 40	+ 40
Parental Occ'l Level						
Gr. 12	+ 35	+ 38	-32	-34	+ 23	+ 05
Gr. 9 or 8	+ 34	+ 37	-32	-28	+ 20	+ 12
Voc'l Aspiration Level						
Gr. 12	+ 61	+ 47	13	19	+ 29	+ 21
Gr. 9 or 8	+ 40	+ 35	13	04	+ 06	+ 09
Curriculum						
Gr. 12	+ 54	+ 69	04	02	+ 46	+ 20
Gr. 9 or 8	+ 32	+ 61	13	-06	+ 21	+ 08
G.P.A.						
Gr. 12	+ 66	+ 66	12	07	+ 73	+ 62
Gr. 9 or 8	+ 55	+ 68	12	14	+ 52	+ 48
Age-in-Grade						
Gr. 12	-41	-37	-09	-04	-41	-20
Gr. 9 or 8	-43	-45	-09	-07	-37	-12
Peer Acceptance						
Gr. 9 or 8	-02	25	-05	11	03	08
# Sch. Activities						
Gr. 12	+ 36	+ 41	-09	23	+ 15	+ 27
Out-of-Sch. Act.: Voc'l						
Gr. 12	+ -16	+ 25	03	-03	+ 06	+ 16
Out-of-Sch. Act.: Avoc'l						
Gr. 12	+ 36	+ 40	-01	03	+ 34	+ 33

---

*N for 9th grade group varies from 55 to 103, 8th grade group varies from 35 to 88.

moderately well with Educational Level at age 25, although somewhat less than does tested intelligence (correlation of .34 to .38 compared to correlations of .43 to .52). Subjects with higher parental socioeconomic levels tend to exceed the education of their parents less than do those with lower socioeconomic backgrounds, but this is an artifact, for those who are born at the top of the ladder cannot, whereas those who start lower can, go higher. It is interesting that family background appears to be related to post-high-school Grade-Point Average in the original ninth graders, but not in the original eighth graders.

Vocational Aspiration Level

Again, Educational Level Attained by age 25 is well predicted, with correlations ranging from .35 (eighth grade) to .61 (the 9-12 sample). This high school variable may also be predictive at the twelfth grade level for the quality of Post-High-School Grades, but the smaller numbers of original eighth graders leave the finding in some doubt.

Age-in-Grade

Age-in-grade shows the expected negative relationships with Educational Level Attained, and with Post-High-School Grades for the original ninth graders, but the latter does not hold for the original eighth graders; when it predicts, it does as well in junior high school as in twelfth grade.

Peer Acceptance

Peer acceptance is not related to educational attainment after high school, except for one unexpected correlation of .25, significant at the .05 level, with Educational Level Attained at age 25. Perhaps being accepted by one's schoolmates does have some effect on staying in school, when other determinants are not more important, and perhaps the original eighth grade sample was a group in which other things were not more important.

School and Out-of-School Activities

Participation in organized activities, both in-school and out-of-school, appears to be related to the Educational Level Attained by age 25. Only one such correlation, in one group, is incompatible with this conclusion: it suggests that vocational activities may not, as pursued randomly by high school boys, be of any importance (in the other group this relationship is low and significant only at the .05 level). Participating in avocational leisure-time activities while in high school appears to be related to quality of achievement in post-high-school education (Grade-Point Average), perhaps because both require a degree of personal commitment and of self-direction.

Summary: Standard School Variables and Post-High-School Education

1. Intelligence and the other generally related in-school variables such as socioeconomic level, vocational aspiration level, curriculum, grade-point average, age-in-grade, and participation in school and community activities, are correlated in the anticipated way with educational level attained after high school. The relationships tend to be not only significant, but substantial. Only peer acceptance, of these school variables, has little predictive validity for continuing education and it may have some validity in one sample, in which the determinants of later success appear to be somewhat different from those which relate to success in the other sample.

2. Of the educational success criteria, educational level attained by age 25 appears to be the most predictable with high school data; it is consistently so. As so often proves to be the case, past behavior is a good predictor of future behavior when dealing with groups, even though it does not help predict which of the former non-achievers will, in the future, change behavior and perform as achievers. Grade-point average in post-high-school education is also a predictable criterion, but only intelligence, grades, and avocational community activities, while in high school, are consistently related to it.

Standard School Variables and Self-Estimated Career Criteria

Relationships between standard school variables and self-estimates of post-high-school career criteria such as establishment and success are reported in Table VIII-5.

(Insert Table VIII-5 about here)

Intelligence, Socioeconomic Level, and Grade-Point Average

Intelligence, tested not only in twelfth grade but as early as ninth, is related as hypothesized to Self-Estimated Career Establishment and Success in the validation sample, but not in the cross-validation sample. This is also true of parental occupational level, with correlations ranging from .17 to .34 for the various career criteria and significance levels sometimes at .05 and sometimes at .01. Grade-Point Average operates in the same way, but with higher correlations (.18 to .41). We have already seen that success, however defined, appears to be determined (if causation may be inferred) by common factors in both samples, but also by other variables operating in one sample only while still other variables operate only in the other sample.

Vocational Aspiration Level

In the original eighth grade sample, those who had high vocational aspirations in junior or senior high school tended not to have achieved, by age 25, the vocational Goal set when in twelfth grade. But this was not true of the original ninth grade sample. Vocational aspiration level tended to be positively correlated with career criteria in the original eighth grade sample as twelfth graders, but not in the other sample, and it appeared to have little significance in either group when in junior high school.

Age-in-Grade and Peer Acceptance

Conceptually and operationally quite distinct, these two high school variables have in common a complete lack of relationship to post-high-school Career Success as variously judged by the subjects themselves.

TABLE VIII-5
STANDARD SCHOOL VARIABLES AND SELF-ESTIMATED CAREER CRITERIA EXPLORATORY AND VALIDATION SAMPLES*

Self-Estimated Career Criteria / School Status and Achievement	Attainment H.S. Goal		Career Establishment		Career Success		Career Satisfaction	
	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19
Intelligence								
Gr. 12	+ 12	+ -09	+ 23	+ 11	+ 32	+ 09	+ 17	+ 08
Gr. 9 or 8	+ 14	+ -07	+ 21	+ 15	+ 29	+ 17	+ 14	+ 06
Parental Occ'l Level								
Gr. 12	+ 18	+ 00	+ 25	+ -11	+ 34	+ 03	+ 25	+ -04
Gr. 9 or 8	+ 19	+ 00	+ 17	+ -06	+ 29	+ 13	+ 18	+ -03
Voc'l Aspiration Level								
Gr. 12	07	-25	11	21	+ 17	+ 18	+ 09	+ 23
Gr. 9 or 8	-07	-23	17	-04	+ 21	+ -02	+ 13	+ -10
Curriculum								
Gr. 12	+ 14	+ -22	+ 33	+ 02	+ 33	+ 23	+ 27	+ 17
Gr. 9 or 8	+ 09	+ -23	+ 14	+ -04	+ 21	+ 07	+ 23	+ 08
G.P.A.								
Gr. 12	+ 16	+ -08	+ 35	+ 09	+ 41	+ 16	+ 31	+ 09
Gr. 9 or 8	+ 10	+ -15	+ 31	+ -01	+ 35	+ 13	+ 18	+ 05
Age-in-Grade								
Gr. 12	07	17	-20	-01	-16	04	-12	00
Gr. 9 or 8	08	12	-19	-18	-16	-07	-13	-11
Peer Acceptance								
Gr. 9 or 8	00	-15	04	14	16	02	08	10
# Sch. Activities								
Gr. 12	+ 02	+ -07	+ 12	+ 02	+ 21	+ 08	+ 12	+ 21
Out-of-Sch. Act.: Voc'l								
Gr. 12	+ 01	+ 14	+ 21	+ 16	+ 18	+ 12	+ 26	+ 05
Out-of-Sch. Act.: Avoc'l								
Gr. 12	+ 21	+ -13	+ 20	+ 01	+ 22	+ 12	+ 15	+ 19

---

*N for 9th grade group varies from 97 to 102, 8th grade group varies from 85 to 88.

⑤

School and Out-of-School Activities

The relationships between high school and community activity participation and self-estimated post-high-school Career Success or Satisfaction are inconsistent and perhaps inconsequential. But it may be worth noting that out-of-school activities are related to self-estimated Career Establishment in the original ninth grade group, and that these and school activities are related to self-estimated Career Success in the same group, as hypothesized, even though this is not true of the original eighth grade group. It may be noteworthy, too, that school and out-of-school avocational activities are related as expected to Career Satisfaction in the original eighth graders but not in the original ninth graders. Again, one is pushed to consider the possibility that one set of variables determines success in one sample, and another in the other sample, in addition to a common set of predictors for the two samples.

Summary: Standard School Variables and Self-Estimated Career Criteria

1. No standard school status or achievement characteristics appear to be consistent predictors of self-estimated career establishment, success, or satisfaction.

2. In the original ninth grade sample, intelligence, curriculum, grade-point average, and all types of activity participation appear to be predictive. In the original eighth grade sample, vocational aspiration level when in twelfth grade, perhaps curriculum in twelfth grade, and non-vocational activities (in- and out-of-school) appear to be related to later self-estimated career establishment success, and satisfaction.

3. The most predictable of these career self-estimates, with standard school variables, are career establishment in the 9-19 sample, and career success and satisfaction particularly in this but also to a lesser extent in the 8-19, seemingly less predictable, sample.

Standard School Variables and Occupational Level and Outlets

The relationships between standard school measures of personal status and achievement, on the one hand, and occupational level attained and outlets found at age 25, on the other, are presented in Table VIII-6 and discussed in the paragraphs which follow.

(Insert Table VIII-6 about here)

Intelligence, Socioeconomic Level, and Related Variables

Table VIII-6 shows that intelligence, parental occupational level, vocational aspiration level, curriculum pursued, and grade-point average in high school, are as expected, moderately correlated with Occupational Level at age 25, in both validation and cross-validation samples and at not only twelfth grade but even as early as eighth or ninth grade. They tend also to predict self-estimated Utilization of Assets and Opportunity for Expression of interests and abilities in the original ninth graders. The original eighth graders persist in being different in some ways, being unpredictable for these criteria by means of these variables, while showing a relationship between one predictor variable, peer acceptance, and one of these criteria, utilization of assets.

School and Out-of-School Activities

Number of school activities, and number of out-of-school activities which are avocational in nature, are moderately related in the hypothesized way to Occupational Level at age 25 in the validation sample, and somewhat related in the cross-validation sample. Out-of-school activities of both types show the expected relationship to self-estimated Utilization of Assets in the original ninth graders, but not in the original eighth graders. As the mean of the ninth graders is higher than that of the eighth graders, perhaps restriction of range causes the lack of support in the latter group.

Summary: Standard School Variables and Occupational Level and Outlets

1. The intelligence, educational, avocational, and social status variables

TABLE VIII-6
STANDARD SCHOOL VARIABLES AND OCCUPATIONAL LEVEL AND OUTLETS AT AGE 25 EXPLORATORY AND VALIDATION SAMPLES*

Occ'l Level and Outlets at Age 25	Occ'l Level		Utilization of Assets		Self-Expression	
School Status and Achievement	9-19	8-19	9-19	8-19	9-19	8-19
Intelligence						
Gr. 12	+ 41	+ 41	24	20	25	-09
Gr. 9 or 8	+ 36	+ 42	15	19	26	-06
Parental Occ'l Level						
Gr. 12	+ 31	+ 27	+ 19	+ -14	+ 34	+ -08
Gr. 9 or 8	+ 29	+ 26	+ 10	+ -15	+ 28	+ -01
Voc'l Aspiration Level						
Gr. 12	+ 44	+ 37	17	16	22	06
Gr. 9 or 8	+ 29	+ 19	16	10	10	-04
Curriculum						
Gr. 12	+ 33	+ 48	23	08	24	01
Gr. 9 or 8	+ 37	+ 38	15	08	25	01
G.P.A.						
Gr. 12	+ 44	+ 50	26	19	31	-01
Gr. 9 or 8	+ 36	+ 48	20	12	27	-01
Age-in-Grade						
Gr. 12	-26	-30	-31	-01	-23	06
Gr. 9 or 8	-28	-35	-30	-08	-25	-04
Peer Acceptance						
Gr. 9 or 8	19	12	05	27	02	13
# Sch. Activities						
Gr. 12	+ 44	+ 28	+ 10	+ 12	+ 14	+ 02
Out-of-Sch. Act.: Voc'l						
Gr. 12	+ 00	+ -10	+ 20	+ 18	+ 01	+ 02
Out-of-Sch. Act.: Avoc'l						
Gr. 12	+ 41	+ 29	+ 19	+ -01	+ 17	+ -08

---

*N for 9th grade group varies from 91 to 96, 8th grade group varies from 80 to 87.

are moderately good predictors of occupational level and outlets at age 25, in both samples and at both junior- and senior-high-school levels. Those who have good resources and experiences in school and in the community during their adolescent years rise to higher occupational levels and find better outlets for their abilities and interests than do those who lack such resources and experiences.

2. Although a number of variables operate in the same way in the two samples to predict occupational level, in one sample only are high school status and achievement somewhat related to opportunities for self-expression (the original ninth graders), and only in the other does peer acceptance in junior high school predict a career criterion, utilization of assets (the original eighth graders).

3. The most predictable of the career criteria, using school status and achievement variables as predictors, appears to be occupational level even at age 25.

Standard School Variables and Self-Estimated Success and Satisfaction

The standard measures of status and achievement in junior and senior high school were correlated with self-estimates of position and occupational success and satisfaction at age 25, with results reported in Table VIII-7.

(Insert Table VIII-7 about here)

Intelligence and the Related Variables

Intelligence, tested in either junior or senior high school, shows the hypothesized moderate correlations with Occupational Satisfaction-2 at age 25, when the latter is judged by desire to choose the same occupation if starting over again, in both validation and cross-validation groups ($r = .24$ to $.32$, significant at the .01 level). Curriculum and high-school grade-point average operate in the same way and are correlated with self-estimated Occupational Satisfaction-1 (desire to remain in the same occupation) only in the original

TABLE VIII-7
STANDARD SCHOOL VARIABLES AND SELF-ESTIMATED POSITION OR OCCUPATIONAL SUCCESS AND SATISFACTION AT AGE 25 EXPLORATORY AND VALIDATION SAMPLES*

Position or Occ'l Success and Satisf. School Status and Achievement	Position Success		Occ'l Success		Position Satisf.		Occ'l Satisf.-1		Occ'l Satisf.-2	
	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19
Intelligence Gr. 12	03	00	+ 22	+ -10	+ 17	+ 02	+ 27	+ 14	+ 24	+ 32
Gr. 9 or 8	07	01	+ 22	+ -06	+ 11	+ -01	+ 26	+ 18	+ 28	+ 31
Parental Occ'l Level Gr. 12	20	03	+ 29	+ 10	+ 11	+ 02	+ 28	+ -02	+ 31	+ 10
Gr. 9 or 8	17	-04	+ 24	+ 11	+ 06	+ 05	+ 21	+ 03	+ 21	+ 07
Voc'l Aspiration Level Gr. 12	06	25	+ 16	+ 15	05	14	21	23	20	29
Gr. 9 or 8	05	00	+ 08	+ 07	-01	-01	29	-01	11	03
Curriculum Gr. 12	-01	04	+ 07	+ 06	+ 08	+ 05	+ 42	+ 10	+ 28	+ 27
Gr. 9 or 8	05	07	+ 16	+ 00	+ 15	+ 08	+ 18	+ 01	+ 28	+ 32
G.P.A. Gr. 12	-02	-03	+ 24	+ -01	+ 09	+ -02	+ 42	+ 21	+ 36	+ 31
Gr. 9 or 8	09	-07	+ 23	+ -12	+ 11	+ -09	+ 34	+ 10	+ 28	+ 25
Age-in-Grade Gr. 12	01	-04	-15	-07	-15	-06	-25	-05	-10	-23
Gr. 9 or 8	03	-20	-16	-09	-13	-16	-26	-25	-11	-41
Peer Acceptance Gr. 9 or 8	+ 25	+ 08	06	02	+ 08	+ -04	-01	18	12	22
# Sch. Activities Gr. 12	00	10	+ 21	+ 07	+ 06	+ -18	+ 15	+ 10	+ 10	+ 26
Out-of-Sch. Act.: Voc'l Gr. 12	01	08	+ 14	+ 18	+ 09	+ 03	+ 12	+ 20	+ 12	+ -05
Out-of-Sch. Act.: Avoc'l Gr. 12	02	03	+ 09	+ -01	+ 28	+ -08	+ 20	+ 07	+ 09	+ 10

---

*N for 9th grade group varies from 86 to 102, 8th grade group varies from 74 to 88.

ninth grade sample.

Parental occupational level, and vocational aspiration level, show varying relationships with the occupational criteria, the twelfth grade measure of the latter being predictive of Occupational Satisfaction judged by both measures in both samples.

Peer Acceptance

Peer acceptance showed a promising correlation with Position Success in the first sample, seeming to support the hypothesis that social adjustment is related to self-estimated success in a work situation, but the cross-validation did not bear this out. No other significant correlations were observed between peer acceptance and position or occupational criteria.

School and Out-of-School Activities

The relationships between participation in activities of various types and Position and Occupational Success and Satisfaction criteria shown in Table VIII-7 are few and inconsistent and therefore presumably non-existent, although a number had been hypothesized and two unreplicated relationships were found.

Summary: Standard School Variables and Success and Satisfaction

1. Intelligence and the related status and achievement variables, assessed in both junior and senior high school, tend to be related to self-estimated occupational success and satisfaction in young adulthood.

2. Peer acceptance and participation in activities show no consistent relationships with self-estimated position and occupational success and satisfaction.

3. Of these self-estimates, those of occupational satisfaction are the most predictable, the desire to choose the same occupation, if given a choice, being the most consistently predictable of the two criteria of this type.

Concomitants of Young Adult Vocational Development

Several types of data, in addition to educational and work histories, were collected from the Career Pattern Study subjects ten years after they were first studied, when they had been out of high school about seven years and were about 25 years old. From these data measures of parental occupational level (contemporaneous as contrasted with antecedent), family social mobility (change in socioeconomic status during the ten-year period), cultural participation (number, variety, and intensity of childhood and adolescent uses of resources in the culture, a measure conceptually similar to the earlier measures of participation in school and community avocational activities), independence (from parental and adult controls, also in childhood, adolescence, and early adulthood), adjustment (amount of conflict as revealed by Rotter Incomplete Sentence Blank sentence completions), and marital status. The cultural participation and independence scores were derived from a multiple-choice biographical inventory designed for this purpose. The measures are described in more detail in Chapter IV. Correlations with the criterion measures which appear to be most adequate (as summarized at the end of this chapter) and a few other of special interest are reported in Table VIII-8.

(Insert Table VIII-8 about here)

Parental Occupational Level

The socioeconomic level of the subjects' parents when the subjects were young adults is related, as it was when assessed during the formative years, to many of the valid criteria of young adult vocational success. It is consistently related, in both samples, to Educational Attainment and to Occupational Level; it is related, as hypothesized, in the validation group only, to Realism of Reasons for Changing Positions, Career Success, Opportunity for Self-Expression, and Occupational Success and Satisfaction; it just misses being related to Stabilizing as contrasted with floundering behavior, post-high-school

TABLE VIII-8
CONCOMITANTS OF YOUNG ADULT VOCATIONAL DEVELOPMENT*

Concomitants	Parental Occ'l Level		Family Social Mobility		Cultural Participation (BI)		Independence (BI)		Adjustment (ISB)		Marital Status	
Selected Criteria	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19	9-19	8-19
Scale II-Realism of Reasons	$\overset{+}{\underline{\underline{27}}}$	$\overset{+}{16}$	$\overset{+}{-05}$	$\overset{+}{04}$	$\overset{+}{\underline{\underline{40}}}$	$\overset{+}{\underline{\underline{41}}}$	$\underline{23}$	-05	00	-02	-13	08
Scale VB-Educ'l Improvement	$\underline{21}$	$\underline{\underline{49}}$	-06	-03	$\overset{+}{\underline{\underline{31}}}$	$\overset{+}{\underline{\underline{59}}}$	06	-08	-06	-10	$-\underline{\underline{32}}$	-08
Stabilizing Behavior (Ext.Soc.)	$\overset{+}{16}$	$\overset{+}{02}$	$\overset{+}{-06}$	$\overset{+}{17}$	$\overset{+}{\underline{\underline{30}}}$	$\overset{+}{16}$	16	08	18	20	01	03
College G.P.A.	$\overset{+}{24}$	$\overset{+}{10}$	$\overset{+}{10}$	$\overset{+}{-05}$	$\overset{+}{18}$	$\overset{+}{\underline{\underline{48}}}$	11	06	$-\underline{32}$	$-\underline{35}$	-17	06
Educ'l Level Attained	$\overset{+}{\underline{\underline{34}}}$	$\overset{+}{\underline{\underline{46}}}$	$\overset{+}{09}$	$\overset{+}{10}$	$\overset{+}{\underline{\underline{53}}}$	$\overset{+}{\underline{\underline{59}}}$	11	04	-09	-06	$-\underline{\underline{43}}$	-14
# Mos. Unemployed	-08	00	08	$-\underline{22}$	$\overset{-}{-04}$	$\overset{-}{17}$	-05	18	-01	-13	-08	$-\underline{\underline{30}}$
# Mos. Self-Support	-09	$-\underline{\underline{42}}$	-06	05	03	$-\underline{26}$	19	$\underline{27}$	-09	04	-15	-16
Career Success	$\overset{+}{\underline{\underline{27}}}$	$\overset{+}{04}$	$\overset{+}{02}$	$\overset{+}{-16}$	$\overset{+}{\underline{\underline{45}}}$	$\overset{+}{\underline{\underline{27}}}$	$\overset{+}{\underline{\underline{25}}}$	$\overset{+}{04}$	16	$\underline{27}$	-01	12
Career Satisf.	$\overset{+}{16}$	$\overset{+}{-03}$	$\overset{+}{03}$	$\overset{+}{05}$	$\overset{+}{\underline{\underline{28}}}$	$\overset{+}{\underline{\underline{33}}}$	$\overset{+}{00}$	$\overset{+}{04}$	$\underline{23}$	$\underline{\underline{30}}$	-05	04
Occ'l Level	$\overset{+}{\underline{\underline{30}}}$	$\overset{+}{\underline{\underline{31}}}$	$\overset{+}{08}$	$\overset{+}{-01}$	$\overset{+}{\underline{\underline{49}}}$	$\overset{+}{\underline{\underline{40}}}$	01	11	04	-09	-20	02
Opportunity for Self-Expression	$\overset{+}{\underline{\underline{29}}}$	$\overset{+}{-07}$	08	-07	$\overset{+}{\underline{\underline{32}}}$	$\overset{+}{\underline{\underline{22}}}$	$\overset{+}{19}$	$\overset{+}{\underline{24}}$	16	$\underline{25}$	-10	03
Position Success	20	-02	12	04	10	18	09	$\underline{24}$	$\underline{23}$	$\underline{\underline{38}}$	14	06
Occ'l Success	$\overset{+}{\underline{\underline{24}}}$	$\overset{+}{02}$	$\overset{+}{04}$	$\overset{+}{-14}$	$\overset{+}{\underline{24}}$	$\overset{+}{\underline{22}}$	13	06	06	08	12	01
Occ'l Satisf.-1	$\overset{+}{\underline{\underline{23}}}$	$\overset{+}{02}$	$\overset{+}{10}$	$\overset{+}{-02}$	$\overset{+}{\underline{\underline{31}}}$	$\overset{+}{\underline{22}}$	05	12	16	$\underline{\underline{28}}$	-15	02
Occ'l Satisf.-2	$\overset{+}{\underline{\underline{28}}}$	$\overset{+}{14}$	$\overset{+}{20}$	$\overset{+}{10}$	$\overset{+}{\underline{\underline{29}}}$	$\overset{+}{\underline{\underline{33}}}$	11	14	10	12	-16	-12

---

*N for 9th grade group varies from 99 to 103, 8th grade group varies from 84 to 88.

Grade-Point Average, and Career Satisfaction. It is moderately related, negatively, to Self-Support in the second sample only, as might be expected in view of the fact that many students are not self-supporting if more members of that sample went on to college, but this last was not the case.

Family Social Mobility

Similar relationships were expected between family social mobility and the best vocational development criteria, and only one significant but unreplicated correlation was observed: in the second sample, it is negatively correlated with Months Unemployed. The relationship is logical, but not observed in the first sample.

Cultural Participation

The extent and intensity of participation in use of cultural resources such as clubs, museums, travel, and books is related to more vocational development criteria, and is more highly related to them, than is any other correlate. (In ninth grade it correlated .34 with Otis intelligence test scores.) It is moderately correlated with Realism of Reasons for Changing Positions, Educational Improvement after high school, Stabilizing vocational behavior, Educational Level Attained, Quality-Grade-Point Average after high school, Career Success, Career Satisfaction, Occupational Level Attained at age 25, Opportunity for Self-Expression, and Occupational Success and Satisfaction. The correlations range from .16 (not significant) to .59; the median of the 24 correlations is .32. The most consistently high correlations are with educational and occupational levels, as might be anticipated, and with realism of reasons for changing positions, which is more remarkable: these range from .40 to .59 in the two samples, with a median of .45.

Independence

The measure of independence in the developing years is not consistently related to any of the young adult vocational criteria. It just misses being so related to Opportunity for Self-Expression and to Months of Self-Support, both of which would make theoretical sense (only the former was hypothesized). Perhaps the scale involves too much of a mixture of healthy and rebellious independence behavior, despite an effort not to assess the latter type.

Adjustment

The adjustment score of the Rotter Incomplete Sentences Blank was, like the independence scale of the Biographical Inventory, the focus of much hope when first used in the Career Pattern Study, and of disappointment when the results were analyzed. It has been reported (Super and Overstreet, 1960) that when used in the ninth grade it had a correlation of -.17 with a similar adjustment score derived from the Murray Thematic Apperception Test, and it has in other unpublished analyses been equally disappointing. In the present analysis no relationships were hypothesized, on these empirical grounds, but three significant correlations were found in the exploratory analysis and were confirmed in the validation sample. Adjustment is related to Career Satisfaction (and Satisfaction to Occupational Satisfaction in one group but not quite significantly so in the other) and to Position Success (and to Career Success in one group but not quite in the other); these relationships appear to make good theoretical sense, and would have been hypothesized had not previous data been discouraging. There may, however, be instrument contamination, the verbal "conflict" responses of the Rotter Incomplete Sentences Blank being contemporaneous with the verbal satisfaction and success self-estimates. Adjustment is negatively related to Quality-Grade-Point Average after high school, in both samples. These correlations range from .32 to .35 (disregarding signs).

Marital Status

At the age of 25 marital status in a socially heterogeneous sample means being married or being single, for death, desertion, and divorce are naturally very rare. Being married at 25 is negatively related to Improvement in Educational Status after high school and to Educational Level Attained at age 25, in one sample, and to Months Unemployed in the other, but these relationships are not supported in replication. Occupational Level at 25 and post-high-school Grade-Point Average just miss similar significance in the first group, and Months of Self-Support just misses it in both groups (negatively). One is tempted to conclude that being married at age 25 is associated with impeded educational and occupational advancement, but the apparent relationship is very slight.

Summary: Correlates of Young Adult Vocational Development

Parental occupational level, at age 25 as at age 15 and age 18, is related to many of the criteria of vocational development in the middle twenties. Family social mobility is not consistently related to young adult success, however one defines the latter.

Cultural participation is the most closely, widely, and consistently related correlate of vocational development up to or at age 25, having moderately high correlations with most criteria in both samples. Independence, on the other hand, is a disappointing variable, none of its few correlations with the criteria being clear and consistent.

Adjustment, a surprisingly difficult characteristic to measure reliably and validly, does appear to be slightly related to success and satisfaction, at least when they are defined and measured in certain perhaps contaminated ways. Marital status at age 25, easily enough measured, if not clearly related to success and satisfaction, but may be associated with handicaps in educational and occupational advancement.

Summary: Standard Predictors and Concomitants of Early Adult Careers

In this chapter data have been reported on the relationships between a number of standard pupil characteristics assessed in junior and senior high school (and some again at age 25), and a variety of criteria of success and satisfaction collected when the subjects of the study were seven years out of high school or about 25 years old.

The school measures of intelligence, grades, parental socioeconomic level, vocational aspirations, participation in school activities, and the like, have been described in Chapter IV. The criteria, dealing with career as well as with occupational success, have also been described in detail in Chapter V, and their relationships to a number of unconventional measures designed to assess vocational maturity have been discussed in Chapter VII.

The sample design is used in the analysis of standard school variables and young adult criteria presented in this chapter, permitting testing _a priori_ hypotheses, setting up and testing new hypotheses, and cross-validating hypotheses validated on one group with data from another group or from the same group at a lower grade level.

In the brief summary of the significant findings which follows, the first paragraphs consider the predictive validity of standard school measures in eighth or ninth and again in twelfth grade, and the last deal with the vocational behaviors of young men which are most closely related to earlier school behaviors. Summaries have also been made at the end of each section.

The Valid Standard School Predictors and Adult Concomitants

1. _Intelligence_, measured not only in twelfth grade, but also earlier in junior high school, is consistently and moderately correlated with career criteria such as realism of reasons for changing positions during the post-high-school years, improvement in educational status during the same period, educational level attained, occupational level at age 25, and occupational satisfaction at age 25. It tends also to be related to stabilizing as contrasted with floundering career behavior during the young adult years, and to quality-grade-point average in post-high-school education.

2. _Parental occupational level_, when the student is in either junior or in

senior high school, is related to the same criterion variables as is tested intelligence, and to about the same degree. In the original eighth grade sample, however, it does not predict a number of criteria as it does in the ninth grade sample, these being realism of reasons for changing positions, stabilizing vs. floundering career behavior, and occupational satisfaction at age 25. In the second sample it does predict the number of months of self-support after leaving high school.

3. Vocational aspiration level in the twelfth grade is a consistently fair predictor of educational and occupational levels attained by the age of 25, and of realism of reasons for changing positions during the intervening years. In the original ninth grade group, but not in the eighth, it is positively related to these last variables even when assessed in junior high school. It is related to stabilizing vs. floundering during the post-high-school years only in the original eighth grade sample when assessed in the twelfth grade.

4. Curriculum pursued is rather consistently related to realism of reasons for changing positions and to improvement in educational status after leaving high school, and to educational and occupational level attained by age 25. It predicts stabilizing only in the first sample, at both junior and senior high school levels, and it also predicts later occupational satisfaction in the same group. In the second sample, it again predicts self-support during the post-high-school years.

5. Grade-point average in junior as well as in senior high school is a moderately good and consistent predictor of realism of reasons for changing positions, educational improvement, educational and occupational levels attained, grades in post-high-school education, and occupational satisfaction. It does not predict stabilizing or floundering career behavior after high school.

6. Age-in-grade is a consistent predictor of educational and occupational

levels attained at age 25. It does not predict stabilizing or floundering in either sample. It is related to career criteria such as realism of reasons for changing positions, educational improvement after high school, and self-support, only in the original ninth grade sample (at both ninth grade and twelfth grade levels).

7. Participation in activities in high school was consistently related to realism of reasons for changing positions during the post-high-school years, to educational and occupational levels attained by age 25, and to stabilizing or floundering career behavior. It was related to other criteria in no consistent way.

8. Participation in out-of-school activities, vocational, shows no consistent relationship to any of the early career criteria; avocational activities, however, are consistently related to educational and occupational levels attained by age 25, to post-high-school quality-grade-point average, and to number of times unemployed after high school. Out-of-school activities are related, in expected ways, to stabilizing or floundering career behavior in the original ninth grade sample, but not in the original eighth graders.

9. Concomitants of Vocational Development at Age 25. Several variables were assessed when the Career Pattern Study subjects were about 25 years old, at the time of the collection of criteria data, which are the same as variables studied earlier as possible predictors. Parental occupational level is moderately related to many vocational development criteria, as is cultural participation. Family social mobility and independence as a child and youth are not related to success or satisfaction. Adjustment and marital status at age 25 show a few significant relationships, the former of a positive, the latter of a more doubtful negative, type.

The Valid Criteria in Early Adulthood

The criteria of career development and occupational status in young adulthood, a variety of which have been tried out and some of which were found to be somewhat predictable by vocational maturity in adolescence (Chapter VII) include a number which are moderately or even rather well predicted by standard school measures of status and achievement. The consistently significant correlations range from about .20 to about .65. The best predictions, as might be expected, are those of post-high-school grades by high school grades. But many of the other correlations are in the .30s and .40s.

The consistently predictable criteria are: 1) two scaled career behaviors, i.e., realism of reasons for changing positions and educational improvement; 2) vocational coping behaviors, i.e., stabilizing as contrasted with floundering (using an external frame of reference, particularly the socioeconomic); 3) employment history as shown by self-support and unemployment; 4) educational attainment as shown by educational level attained and post-high-school grades (available only for those continuing formal study); 5) occupational level and satisfaction as shown by occupational level at age 25 and occupational satisfaction (especially when judged by desire to choose the same occupation if starting over again). Of these, the _career development_ scale of _realism of reasons for changing positions_, and _educational and occupational levels_ at age 25, are predicted by the largest number of high school variables, and educational level attained and post-high-school grades are the most accurately predicted. _Stabilizing and floundering_, the vocational coping behavior of special interest in this study, is predictable by several variables in one sample but by fewer in the other sample. It is noteworthy that with these standard school measures, as with vocational maturity predictors, both career and occupational criteria are predictable.

Varying Combinations of Determinants

Differences in the predictive validities of variables in the two samples have been noted, which suggest that some combinations of determinants of young adult careers may be operative in some samples, and other combinations in others. The similarities and differences may be summed up as follows:

In the original eighth grade sample, which included only public school boys (Protestant, Catholic, and Jewish) who entered the public high school, but no parochial school transfers, the common determiners of later career development and status were intelligence and high school grades, while the distinctive predictors were personality variables such as vocational aspiration level and peer acceptance;

In the original ninth grade sample, which included boys from both public junior high school and Roman Catholic parochial school, the same common predictors were effective, but the personality variables were not, while family background variables represented by parental occupational level were, good predictors.

Conclusions. The major findings of this chapter, for the purposes of this study, are as follows:

1. Floundering after high school, measured by a scale of realism of reasons for changing positions or by more global judgements of coping behavior, can be predicted by standard measures of variables often assessed in junior and particularly in senior high school;

2. Occupational criteria, some of which are relatively independent of the career criteria, are also predictable on the basis of standard high school status and achievement measures.

CHAPTER IX
SUMMARY AND CONCLUSIONS: FLOUNDERING AND STABILIZING AFTER HIGH SCHOOL

In this final chapter, the results of this ten-year longitudinal study of vocational development from junior high school until the middle twenties, from age 14 or 15 until age 25, are summarized in order to present an integrated overview. After a short reminder of the nature of the samples studied and of the methods and procedures used, the focus of attention is on career development at age 25. The central issues are floundering and stabilizing after high school, the nature of success in the early twenties, and the validity of vocational maturity scores and various standard measures of status and achievement during the adolescent years as predictors of young adult vocational behavior.

Subjects and Methods

Two samples of junior-high-school boys were drawn in 1951-52, consisting of all of the boys in the eighth and ninth grades in the public schools of Middletown, New York, a city of 23,000 people with one public junior high school and one senior high school. There were 142 boys in the ninth grade; there were 138 boys in the eighth grade, of whom 116 entered the ninth grade in the following year and thus qualified to be part of the sample of this study. Parochial school boys who transferred into the ninth grade in that year were not added to the sample.

Methods used in studying the subjects were interviews, questionnaires, and tests in the first year, during which the principal investigators lived in Middletown. The parents of the boys also were interviewed. A survey of employment in Middletown was made in order to provide a backdrop for the study of vocational development. The subjects were followed up in what would normally have been their senior year, that is, in 1955 for the first sample and 1956 for the second, again with coordinated interviews and tests. Only those who were still in school, in Middletown or elsewhere, were sufficiently accessible for interviewing and testing to make complete follow-up possible. In 1958 and 1959, when the subjects were in the junior year of college if on schedule, they were followed up again with a questionnaire. Finally, in 1962 or 1963, when the subjects were about 25 years old, they were followed up in person, with coordinated interviews, questionnaires, and tests, to bring their family, educational, military, and work histories up to date. At that time, ten years after the study began, all living subjects were located, and 94 percent were interviewed and tested. This is a larger percentage than in earlier follow-ups: lost subjects were found, and most uncooperative subjects were now willing to cooperate. Complete data at all levels were available for 103 of the original ninth graders and for 88 of the original eighth graders, who were shown to be typical of the total group. They generally constitute the samples reported on in this prediction study, except that, for obvious attendance reasons, the numbers are smaller when college data are involved: they are then respectively 54 and 33.

Predictor variables in this study consist of standard measures of intelligence, parental occupational level, school achievement and participation, community participation, peer acceptance, and level of vocational aspiration; in addition, they include a variety of measures designed to assess vocational maturity (readiness for vocational planning) which had passed through the screen of factorial analysis as adequate measures of this hypothetical construct. The two samples are alike on all variables except religion: the original ninth graders include more transfers from the kindergarden-eighth parochial school.

Criterion variables consist of measures of career and of occupational success or satisfaction, including the vocational coping behaviors of floundering, trial, instrumentation, and establishment, and various measures of career development and occupational status up to or at age 25.

The design of the study made possible the testing of *a priori* (theoretically or empirically justified) hypotheses on one twelfth grade group, the setting up and testing on the second twelfth grade group of hypotheses derived from the first exploratory analysis of unhypothesized relationships, and the cross-validation, on the second group, of findings hypothesized on and verified in the first sample. In addition, the availability of the vocational maturity data on one twelfth grade group when they were in the ninth grade made possible the verification of the earlier predictability of young adult career behavior. The availability of the standard school measures for both twelfth grade groups when they were in junior high school (eighth or ninth grade) made possible the validation and cross-validation of these variables at the earlier level.

Vocational Development at Age 25

The geographic mobility of the Career Pattern Study subjects, boys who grew up in a small self-contained city beyond normal commuting distance of New York City, is easily summarized by the fact that, at age 25, and therefore after college attendance and military service, three-fourths lived in the Northeastern States, and two-thirds within a two-hour drive of Middletown. More than one-half lived in Middletown or its immediate vicinity.

The educational attainment of the Career Pattern Study boys was like that of the American population of their generation: three-fourths graduated from high school on schedule, or, if equivalency diplomas are counted, more than four-fifths graduated by the time they were 25 years old. One of the important findings is that more than one-third of the high-school dropouts had earned such diplomas by that time, disproving the notion that once a dropout, always a dropout, in so far as the small city is concerned. (The inner city, the real slum, should be different, as there the dropouts do not have the contacts with graduates which small city boys have.)

Nearly half of the Career Pattern Study boys (graduates or dropouts) went on to post-high-school education, often thanks to the availability of the local community college, but only about one-fourth completed two years of post-high-school education, and about one-sixth finished four years of collegiate education. About one-twentieth completed a masters degree, and fewer still a more advanced degree such as one in law or medicine, or a doctorate in biology or a foreign language. The 9-19 college graduates had a median Otis I.Q. of 112, while the employed non-college men at age 25 had a median I.Q. of 98. None with I.Q.'s exceeding 116 had not gone to college, with the exception of one career soldier.

The employment of the high school graduates was at higher occupational levels, and in more varied occupational fields, than was that of the dropouts. The graduates considered themselves no more successful in their jobs than did the dropouts, which is perhaps appropriate as they are differently employed. But the graduates did consider themselves more successful in the handling of their careers. Interestingly, fewer of the dropouts who had obtained equivalency diplomas considered themselves successful than was true of the non-diplomated, suggesting that it may have been the realization of their educational handicap that drove them to seek the diploma. If so, their greater insight and motivation should, in a later follow-up, reveal them to have then reached higher levels of occupational achievement and career satisfaction than the undiplomated. Perhaps following up until age 25 is not enough: establishment has not taken place in a significant number of young men by that time.

Floundering, trial, instrumentation, and establishment, were analyzed in terms of both modal behavior during the post-high-school years and "final" behavior at age 25. Approximately one-third of the subjects engaged in behavior which was, during the bulk of their post-high-school years, characterizable as floundering. About one-sixth showed equal proportions of floundering and stabilizing (trial, instrumental, or establishment) behavior. And about one-half engaged primarily in stabilizing vocational coping behavior during the the post-high-school years. About one-half of the position changes made during these years by the Career Pattern Study subjects were adjudged as floundering, about one-third as trial, about one-tenth as instrumental, and only about one-twentieth as establishment. At age 25, however, when theory would lead one to expect establishment to be taking place in the average young man, about four-fifths of the subjects of this study (both samples) were indeed observed to be engaging in positive, stabilizing, behavior.

When career development was judged by the best (the most predictable) of the career development scales devised to measure floundering more quantitatively, moves made by both samples which had been judged to involve floundering were indeed found to be characterized by less realistic reasons for making the move than were those which has been judged to involve trial, instrumentation, or establishment.

The employment histories of the Career Pattern Study subjects reveal an average of six moves per subject during the seven years from leaving high school until age 25. The standard deviation was about 2.50, and the range from one to 16. During this time, it should be remembered, many subjects were in college or other educational institutions, or in military service (particularly the dropouts). The average number of times unemployed was less than one, ranging from zero to seven, and the number of months unemployed was on the average less than two, with a range from zero months to two years. The subjects had been self-supporting, on the average, for nearly five of the seven years since leaving high school, with a range from zero (natural in the case of some students) to practically the whole seven years.

The occupational levels attained by age 25 include none of the highest-level professional or managerial occupations, a fact which is understandable at an age at which the most promising men are still in professional school or in junior executive positions. Excluding those who were still in graduate schools (5 percent), in non-career military service (15 percent), unemployed (5 percent), or for various reasons not in the labor market (5 percent), totaling 30 percent of the subjects, the remaining 70 percent were employed in civilian occupations. Treating this group as 100 percent, 5 percent of the Career Pattern Study subjects were, at age 25, in regular professional and managerial positions; 25 percent in semi-professional and managerial posts; about 30 percent each in skilled and semi-skilled occupations; and about 10 percent unskilled. The distribution was thus normal, of one combines the two professional and managerial levels as is done in many scales which, unlike Roe's, do not focus particularly on top level occupations. Dropouts were employed at lower levels and in fewer fields.

Occupational success, estimated by the subjects themselves, is wide-spread: about 90 percent rate themselves as average or above, and only 10 percent consider their success below average. In this respect they do not deviate much from their employers, whose ratings of the success of these men also classified the overwhelming majority as successful in their jobs.

Occupational satisfaction, particularly when the more searching questions are asked, is a somewhat different story. Given a chance to change, less than 80 percent would stay in the same occupation, while more than 20 percent would change. And when asked, at age 25, about their desire to continue in the present occupation, only 20 percent stated that they are in the most desired occupation, to whom should be added 35 percent more who wish to continue in it even though they do not consider it the only occupation which would satisfy them, for a total of only about 55 percent who are more than lukewarm about their work.

Career development measures, analyzed to show the amount of progress from the first position to that held at age 25, showed that the last move was no more appropriate than the first move when judged by improvement in the use of abilities or interests. There was some tendency, however, toward progress toward the occupational goal expressed at age 25, for the last move to be somewhat more realistically motivated than the first move had been, and for the last move to be to a position at about the socioeconomic level of the father's and father-in-law's occupations, whereas the first few positions had been significantly lower.

The Nature of Success in Young Adulthood

One of the key concepts in the launching of the floundering and trial phase of the Career Pattern Study was that of vocational development. Applied to the post-high-school years, this led to an emphasis on the distinction between career and occupational success. It is therefore pertinent to ask what this distinction has contributed to the study. Part of the answer lies in the data on the intercorrelations of the various measures of career development, vocational coping behavior, employment history, educational attainments and career and occupational success and satisfaction.

Correlational Analysis

The analysis of the intercorrelations of the various development and success measures (Chapter VI) has shown that they fall into eight clusters, that eight factors explain them. Of these, six appear to be logically meaningful. These are:

1. Career satisfaction criteria, including self-estimates of career establishment, career success, career satisfaction, occupational satisfaction, and utilization of assets;

2. Self-improvement criteria, including objective measures of educational level attained, improvement in educational status after high school, realism of reasons for changing positions, and occupational level attained;

3. Job getting and holding criteria, consisting of number of times

unemployed and number of months unemployed;

4. Economic self-sufficiency criteria, consisting of an objective measure of self-support after leaving high school and of a self-estimate of occupational success;

5. Early establishment criteria, a cluster of three measures assessing improvement of socioeconomic status by age 25, attainment of the occupational goal set at age 25, and (negatively weighted) number of position changes since leaving high school; and

6. Occupational satisfaction criteria, in which are included self-estimates of opportunity for self-expression, occupational satisfaction, position satisfaction, and utilization of assets, together with objective measures of occupational level attained by the age of 25 and of stabilizing vs. floundering behavior at that same age.

The less satisfactory clusters of criteria include the two measures of goodness of fit, and two measures of attainment of high-school-leaving occupational goal and self-estimated position success. These are considered unsatisfactory because of contradictory weights, the low levels of many of the high-school-leaving goals which persisted until age 25 and were attained by that time, and the insufficiency of two measures as a basis for identifying a cluster or factor.

Looking at these empirically established clusters of criteria from a logical standpoint, they fall into three broader categories, as follows: satisfaction criteria (clusters 1 and 6, largely career but also occupational); establishment criteria (clusters 2 and 5, self-improvement and establishment); and employment criteria (clusters 3 and 4, job getting and holding, and economic self-sufficiency). The criteria may also be classified according to their objectivity, in which case the last two categories become one.

Perhaps more important, and certainly more relevant, is the question of the career or occupational nature of the empirical clusters. The first and second are largely career but partly occupational in composition. The fifth is largely occupational but includes one career criterion (stabilizing vs. floundering behavior). The fourth also seems partly career and partly occupational in nature, but having just two components is less easy to classify. The third and sixth are rather clearly career in their composition, for they involve progress or events over a period of time. Thus the logical career-occupational dichotomy is not well supported empirically, for four clusters are entirely or largely made up of career criteria, one is largely but not purely occupational, and one is a mixture of doubtful balance.

It would seem, from the above, that there is some utility in the career-occupational dichotomy, but that it is not empirically neat. Some of the lack of empirical neatness may, of course, reside in the defects of the measurement procedures rather than in the logic of the categories. For example, although subjects succeeded in making a distinction between occupations and careers, it was not perfectly made: the correlations between self-estimated career and occupational satisfaction are about .45, perhaps because one is somewhat dependent on the other. This could account for one instance of seemingly logical impurity in an empirical cluster.

Predictability Analysis

Normally criteria are selected first on grounds of conceptual adequacy and appropriateness, although theory is often greatly tempered by practical considerations such as availability and reliability. But another possible practical consideration, also legitimate if it is brought to bear after that of conceptual adequacy, is predictability. Given two theoretically satisfying criteria, one of which can be predicted and the other not, the choice as to which to use would seem rather easily made.

It may be argued that to use a criterion to validate a predictor, and then to consider the criterion valid because it can be predicted, is to indulge in circular reasoning. But the circularity may not in itself be damning; indeed, it is the circularity of wheels which is their principal virtue, enabling them to roll. One may argue that a criterion, chosen because it is conceptually adequate, is also useful because it can be predicted.

Considering, then, the predictability of the Career Pattern Study criteria, we may very briefly summarize in Table IX-1 what has been reported in Chapters VII and VIII.

(Insert Table IX-1 about here)

This summary of the relationships between types of predictor variables and the various criteria is necessarily approximate, for it groups the predictors by type, and disregards some consistently reliable relationships. The number of x's in a row is a rough indication of the number of valid predictors, kept approximate because the moderate intercorrelations of some predictors, and the comparable intercorrelations among some criteria, would give any attempt at a numerical score a misleading semblance of precision. It puts in tabular form what is contained in the verbal summaries of the respective chapters. The two clusters which were found unsatisfactory in the correlational analysis are omitted; none would have any entries in the columns of this table had they been included.

The first cluster, consisting of measures with heavy loadings of career satisfaction, is related largely to antecedent vocational maturity variables. Only one of the criteria is related significantly to antecedent variables of the standard school status and achievement type. This type of criterion of vocational development at age 25 does appear predictable.

The second cluster, made up of self-improvement criteria, is quite consistently predicted by both vocational maturity and standard measures,

Table IX-1
THE PREDICTABILITY OF CAREER AND OCCUPATIONAL CRITERIA

Cluster: Criterion	Valid Predictor	
	Vocational Maturity	Standard Measures
1. **Career Satisfaction**		
Career Establishment	-	-
Occupational Satisfaction	x	x
Career Satisfaction	x	-
Utilization of Assets	x	-
Career Success	x	-
2. **Self-Improvement**		
Educational Level	x	xxx
Educational Improvement	xx	xx
Realism of Reasons	xx	xxx
Occupational Level	x	xx
3. **Job Getting and Holding**		
Times Unemployed	-	x
Months Unemployed	-	x
4. **Economic Self-Sufficiency**		
Months of Self-Support	-	x
Occupational Success	x	-
5. **Early Establishment**		
Socioeconomic Improvement	-	-
Goal Attainment	-	-
Number of Moves	-	-
6. **Occupational Satisfaction**		
Opportunities for Self-Expression	x	-
Occupational Satisfaction	xx	x
Position Satisfaction	-	-
Stabilizing-Floundering	x	xx
Occupational Level	x	x
Utilization of Assets	x	-

particularly by the latter.

The third cluster, job getting and holding, is not related to antecedent vocational maturity variables to any significant degree. It is related to some of the standard school measures of status and achievement.

The fourth cluster, economic self-sufficiency, is in one instance predicted by vocational maturity, in the other by standard measures. That occupational success is better predicted by the vocational maturity than by the status and achievement measures is surprising; the explanation may lie in the subjective nature of self-estimate criteria and the subjective content (but not method) of the vocational maturity measures. Both the self-support criterion and the standard measures are largely objective in content as well as in method. Judged by these data, however, this two-variables criterion cluster hardly seems to be a cluster.

The fifth cluster, early establishment criteria, is not well predicted by either vocational maturity or by standard measures of status and achievement available in junior and senior high schools.

The sixth cluster, occupational satisfaction, which includes the stabilizing-floundering measures of special interest in this study, is well predicted by both vocational maturity and standard school measures.

The pattern of prediction suggests that the most predictable criteria of vocational development during the early twenties are those involving self-improvement (using both vocational maturity and conventional predictors), occupational satisfaction (with both vocational maturity and standard predictors), and career satisfaction (largely with vocational maturity predictors). Job getting and holding and economic self-sufficiency, as measured in this research, are less well predicted, but perhaps better by standard measures than by vocational maturity. Early establishment criteria do not appear to be very predictable. A re-examination of the detailed validities makes it clear that it is the educational criteria in the self-improvement category which are best predicted; as one might expect, this is when educational predictors are those used.

The self-improvement and occupational satisfaction criteria thus emerge as the most generally predictable criteria of vocational development in the early twenties. At the same time, when certain kinds of predictors are being studied, certain other types of criteria are more likely to be relevant: career satisfaction is more often related to vocational maturity than to conventional predictor variables.

A Conceptually and Empirically Adequate Definition of Success

What then is the nature of vocational success in young adulthood, judging both theoretically and empirically? The findings of this study suggest that it is

Self-improvement, moving up the educational and occupational ladders, with realistic reasons for each move; and

Satisfaction, satisfaction with the occupation in which one is engaged; with the outlets available for one's abilities, interests, and experience; and with the way in which one is handling the sequence of steps involved in pursuing a career.

Adolescent Antecedents of Young Adult Vocational Behavior

Chapters VII and VIII have been devoted to reporting the results of analyzing the relationships between junior- and senior-high-school observations of adolescent boys, and various assessments of vocational behavior during the years after leaving high school. In this section these findings are drawn upon to describe the adolescent determinants, or, more conservatively, antecedents, of young adult vocational behavior and development.

Vocational Maturity as a Predictor

In the Career Pattern Study monograph on the vocational maturity of ninth grade boys, Super and Overstreet (1960) intercorrelated a variety of measures presumed on theoretical grounds to measure vocational maturity, and thus drew conclusions as to the construct validity of the measures. Heyde and Jordaan (in process) have refined and extended this work. Predictive validity, however, is the crucial test of a broadly defined construct validity, for the justification of the construct is that it makes theoretical sense and that the theory indeed does what a theory of behavior should do, namely, predict later behavior. In this study, the lapse of time, and the consequent accumulation and analysis of criterion data, make possible the examination of the predictive or long-term construct validity of vocational maturity.

In the cross-sectional analysis in the ninth grade, a summary of which is relevant here, indices of the consistency of vocational preferences, crystallization of vocationally relevant traits, independence of work experience, and wisdom of vocational preferences did not seem promising. Orientation to the tasks of vocational choice, as measured by awareness of the need to choose, the acceptance of responsibility for choice and planning, the possession of relevant vocational information, and the fact of making plans for training and entering the preferred occupation, were found to have construct validity.

In the longitudinal analyses in ninth, twelfth, and nineteenth grades (the last being age 25, not actually a school or college grade for most, but a time at which they were fully employed as young adults), most of the earlier conclusions are supported and a few are changed. Table IX-2 organizes the summary of the results of the present analysis (the end of Chapter VII).

(Insert Table IX-2 about here)

The left-hand column in Table IX-2 gives the name of the presumed vocational maturity dimension (category of indices) used in the cross-sectional study (Super and Overstreet, 1960). The second column gives the terms used in this, the longitudinal study, for the same dimension, and for the indices or component measures which were included for study as a result of having the

Table IX-2
THE PREDICTIVE VALIDITY OF VOCATIONAL MATURITY MEASURES

Measure		Valid in Grade	
Cross-Sectional Study[1]	Longitudinal Studies[2]	9	12
Orientation	Occupational Information		
	High School Background	x	x
	Training and Education	xx	xx
	Supply and Demand	x	x
	Hours	-	-
Planning	Planning and Implementation		
	Planning to Qualify	x	x
	Implementation	-	-
Crystallization: Traits	Interest		
	Interest Maturity	xx	xx
	Patterning of Interests	x	x
Independence: Work	Nature of School Work Experience		
	Self-Employment	(x)	(x)
	Auspices of Work	(x)	(x)
Wisdom of Vocational Preferences	Wisdom of Vocational Preferences		
	Socioeconomic Accessibility	-	-
	Agreement: Abilities-Preferences	-	(x)
Consistency of Vocational Preferences	Consistency of Vocational Preferences		
	(omitted for lack of factorial validity)	-	-

---

[1] Super, D.E. and Overstreet, Phoebe L. The vocational maturity of ninth grade boys. New York: Bureau of Publications, Teachers College, 1960.

[2] The present investigation, based on Heyde, Martha B., and Jordaan, J.P. The high school years. New York: Teachers College Press, in process.

largest factor loadings in that cluster or dimension in the high school study (Heyde and Jordaan, in process). The next two columns indicate (by means of one or two x's or a minus sign) the relative validity of each measure, in the ninth and in the twelfth grades, as a predictor of young adult vocational behavior.

Occupational information measures of vocational orientation, especially those pertaining to training and education requirements, are valid not only in twelfth grade, but even as early as the ninth, supporting the results of the cross-sectional study. It should be remembered that the information in question is not that which pertains to the adult occupation, but rather that pertaining to the occupation or occupations which then interested the boy, and that the majority of boys do not enter the occupation in which they express interest in senior high school, still less in junior high school.

Planning, but not implementation, has predictive validity at both ninth and twelfth grade levels, confirming and extending the conclusions of the cross-sectional study in ninth grade. The exploratory nature of vocational orientation even at the end of the high-school years appears to be brought out by the contrasting validities of these two measures at both grade levels.

Interest maturity is the only measure of crystallization-of-traits which survived the factorial and predictive validity analyses. Evidence from other studies, including its correlations with the occupational scales of the Strong Vocational Interest Blank, had led to the tentative conclusion that it lacked construct validity. That conclusion is now clearly in need of revision: measured in ninth as well as at twelfth grade, it does predict vocational development in young adulthood. The measure of patterning of interests, also based on the Strong Vocational Interest Blank, thought to be more promising, lacks predictive validity.

The nature of high school work experience, labelled independence of work experience in the earlier study, best measured by self-employment and by the independence of the auspices of employment, has very little and very specific predictive validity. These indices should therefore be used only for special purposes and on the basis of direct evidence supporting them. The tentative rejection of these measures in the cross-sectional study therefore appears to have been warranted.

The wisdom of vocational preferences, best measured by socioeconomic accessibility and by agreement between actual and required abilities, lacks predictive validity in the ninth grade, supporting the earlier conclusion that it lacked construct validity at that early stage. The former measure also lacks predictive validity in twelfth grade. The measure of wisdom in terms of abilities has predictive validity only to a very limited degree at the higher grade level, where it has consistent low positive correlations with realism of reasons for changing positions, and low positive correlations with other criteria in the validation sample which are unsupported in the cross-validation sample. It appears that, even in twelfth grade, the wisdom of a boy's vocational preferences tells little about his vocational future.

Finally, it should be noted that the consistency dimension, found lacking in construct validity in the earlier study, was found lacking in the same way in the factorial analysis of the twelfth grade data, with the result that the predictive validity of those measures was not analyzed.

Conceptually and empirically adequate measures of vocational maturity appear to be those which assess a boy's knowledge of education and training requirements for the occupations in which he is interested, together with certain other aspects of information, not so much because he will use those facts (or fictions), but because the possession of such information indicates an orientation to the world of work which will help him as the need for decisions, and for data on which to base them, arises. Planning is important for the same reasons, but less so. Interest maturity, as measured by Strong's Vocational Interest Blank, is also empirically sound as a measure of vocational maturity, conceptually adequate because it measures similarity of interests to those of older (more mature) males, but conceptually puzzling because in the process it measures similarity of interests to those of men in social service as contrasted with scientific occupations.

School Status and Achievement as Predictors

The Career Pattern Study has used a number of standard measures of status and achievement, often matters of record in schools or easily obtained from school records. It is pertinent to review the summary of their predictive validity for the most adequate of the vocational development criteria in young adulthood. Table IX-3 gives the findings in concise form.

(Insert Table IX-3 about here)

This table brings out the fact that the standard measures which are most widely used in the schools and in educational and vocational guidance are the best predictors of vocational development in young adulthood. As is made clear in the detailed presentation (Chapter VIII) of which this is just a very brief summary, some predictors are valid for some criteria but not for others. But it is noteworthy, as the number of x's brings out, that these conventional measures do have so much bearing on the subsequent vocational development of high-school boys. Those who are well endowed personally and environmentally, who aim high, who take the more demanding school program, who earn good grades in junior and in senior high school, and who use the extra resources made available to them in school and in out-of-school activities, tend to handle their post-high-school careers better, and to be more successful and satisfied in their jobs, than do boys who lack these characteristics, do not act thus, and do not use these resources. It is noteworthy, too, that although some predictor variables have validity for both samples studied,

Table IX-3
THE PREDICTIVE VALIDITY OF STANDARD SCHOOL MEASURES

Measure	Valid in Grade 9	 12
Intelligence	xxx	xxx
Parental Occupational Level	xx	xx
Vocational Aspiration Level	(x)	x
Curriculum Pursued	xx	xx
Grade-Point Average	xx	xx
Age-in-Grade	x	x
Participation in Activities: School	-	xx
Out-of-School, Vocational	-	x
Out-of-School, Avocational	-	x

certain predictors (e.g., parental occupational level) have validity for one sample which they lack for another, in which still other variables (e.g., vocational aspiration level), invalid in the first sample, do have predictive validity; differences in the religious composition of the samples are the only possible explanation.

Conclusions

This chapter has summarized, briefly, the methods and results of the longitudinal study of the careers of some 200 boys, beginning in junior high school and following them for ten years until they were about 25 years old. Their vocational development has been described, the adequate criteria of success and satisfaction in the early twenties have been considered, and the valid predictors of these criteria have been discussed. The construct of vocational maturity, defined when the study began, has been refined and proved useful. Standard measures of pupil status and achievement used in school have also been shown to be related to sound criteria of vocational development in young adulthood.

APPENDIX A

THE QUESTIONNAIRE-INTERVIEW BATTERY

THE QUESTIONNAIRE-INTERVIEW BATTERY

The principal instrument for collecting data in the 8-19 and 9-19 (age 25) follow-ups was an integrated battery of questionnaires and interview guides, called the *Questionnaire-Interview Battery* (QIB). Educational, military, and work histories from grade 12 to about age 21 had been collected by a *Work and Training Questionnaire* which covered essentially similar material in less detail. The age 25 forms consisted of:

1. The Administrator's Guide to the Questionnaire-Interview Procedure (directions for reimbursement, administering questionnaires, coordinating with the Interviewer, administering the Rotter Incomplete Sentences Test, Work Values Inventory, Strong Vocational Interest Blank, Biographical Inventory, and Descriptions Inventory)
2. The Checklist for the QI Procedure
3. The Interviewer's Guide to the Entire Procedure
4. Interviewer's Guides to Each Questionnaire
5. The Questionnaires
    1. Time Sheet (a calendar of activities since the last contact)
    2. Personal Data Blank
    3. Military Form
    4. Training and Education Form
    5. Job Cut-Off Form (brief form for all positions)
    6. Job Master Form (more detail for major jobs)
    7. Career Form E (Evaluation)
    8. Career Form P (Planning)
    9. Missing Data Form (if needed to fill gaps in information collected previously)

The Questionnaire Administrator checked the completion of each questionnaire while the subject worked on the next, asking necessary questions in the process. The *Time Sheet* served as a guide to the selection of questionnaires, e.g., a *Military Form* was used only if there had been military experience. A *Job Cut-Off Form* was completed for every job, and a *Job Master Form* for each significant job (operational definitions of "significance" were provided). Interview guides and questionnaires were color-matched to facilitate use (e.g., *Military Forms* were green).

The Interviewer had 45 minutes in which to study completed questionnaires and prepare his interview, the Guides directing his attention to topics on which the interview was expected to expand. The Questionnaires asked for factual material and easily recorded attitudes, e.g., *Job Cut-Off Form* q. 16 asks:

Do you now have this job?

____Yes.

____No. If no, why did you leave it?

____I was offered a better job in another company.

____I did not have enough training for it so I quit.

____The job ceased to exist (plant closed, lay off).

____I left to go to school.

____I left to go into the service.

____My family wanted me to leave.

____I was dissatisfied with it so I quit.

____I became sick.

____I was promoted.

____I was fired because ________(please explain)____________

____

____Other __________(explain)____________________

____

The Interviewer's Guide directs:

Q. 16: Find out if his leaving the job was floundering behavior or a wisely considered move. If he was fired, find out how this affected his self-concept.
Lead: Why did you check _______?

Thus the Interview served as a means of probing, in more subtle ways, the topics covered in the Questionnaires. The subject had been told, by the Administrator, to make a check mark by any of his answers on the Questionnaire which he felt he would like to explain more fully in the Interview. The checks alerted the Interviewer to allow the subject to clarify certain answers, and thus eliminate in some instances what might otherwise have been misleading answers.

Interviewers, all trained and experienced counselors, underwent special training in these procedures. After reviewing procedures, they tape-recorded interviews with suitable subjects (not in the Study) and, in small groups, played back and discussed these trial interviews.

APPENDIX B

SCORING MANUALS FOR THE CAREER DEVELOPMENT SCALES AND FOR THE EMPLOYMENT HISTORY VARIABLES OF CAREER STATISTICS

SCORING MANUAL FOR SCALE I OF CAREER DEVELOPMENT SCALES

I. Change in Equity

The purpose of this scale is to evaluate the amount of loss incurred or advantage gained by a subject when making a particular job or training move. (It was derived from External Criteria in Socioeconomic Terms, Career Behaviors, Super, 1963.) The scale examines degree of carry-over of experience, pay-rate, training, and benefits from one position to the next. A job may involve loss of tenure, seniority, or profit-sharing; a move from training may involve loss of college credits, or gain in relevant experience in one's field.

(1) Pay Rate

From Job to Job: Information from 9-15 Work & Training Questionnaire (WTQ), Q. 86; from 9-19 Job Master Form (JMF), Q. 10 and interview, where JMF is not available. If the actual increase cannot be found, but subject states that he made move "for more money", score +1.

Score ranges from -1 to +1. Subject should have lost or gained $10 a week to earn more than 0 credit. Consider last salary on previous job, beginning salary on next job, unless subject has knowledge of forthcoming raises, e.g., took job with employer's assurance that he would be making $100 a week within 6 months, although he starts at $80.

From Job to Training: Information from 9-15 WTQ only accidentally; (may find data in 9-19 interview); from 9-19 Training Form (TF), Q. 19.

Goes to school on grant or scholarship or part-time job sufficient to defray training cost: Score 0

Goes to school on savings or loans or is supported by wife or family: Score -1
Has grant, etc., but not sufficient to support himself:

From Training to Training: Information from 9-15 WTQ only accidentally; (may find data in 9-19 interview); from 9-19 TF, Q. 19.

Goes from scholarship, grant, or assistantship to training that is financed by personal or public loans or savings, or support from wife or family: Score -1

Goes from loans, savings or support by others to scholarship, grant, or assistantship: Score +1

No change in financing: Score 0

From Training to Job: Always Score +1

Goes to job from scholarship, grant or assistantship is still +1, as room and board are credited under benefits, and salary earned on job is "free and clear", while grants, etc., must pay for tuition and books.

(2) Benefits

Benefits include profit-sharing investment, tenure, union membership, room and board, special retirement plans, etc. Scores range from -1 to +1. Examples follow; all information from 9-19 JMF, Q. 10, second part, from interview, and from 9-15 WTQ, Q. 86, second part.

From Job to Job: Score -1

Previous job: was given room and/or board
Following job: no room or board

Previous job: had been on job five years, was next in line for promotion
Following job: not related; seniority on prior job does not count

From Job to Job: Score 0

Previous job: in same company as next job - no increase or benefits

Previous job: carried no special benefits
Following job: carries no special benefits

From Job to Job: Score +1

Previous job: in same company as next job, but move enables him to share in profits, or gives him expense account

Previous job: few benefits
Following job: in another company or field; gives him room and board, expense account, or pension plan (such as Civil Service)

From Training to Job:

Move from training to job with no special benefits: Score 0
Move from training to job with special benefits: Score +1

(No Score of -1 Possible)

From Job to Training:

Move from job with no benefits to training with room and board, or other special benefits: Score +1

Move from job with no special benefits to training: Score 0

Move from job with special benefits to training: Score -1

From Training to Training:

Move from training with no special benefits to one with special benefits: Score +1

Move from training with special benefits to training without special benefits: Score -1

No change in special benefits: Score 0

(3) Use of Experience

Since the scorer must compare the two positions being evaluated, he must familiarize himself with the duties of the jobs, and/or the subject matter of the training in question.

The basic descriptions of the prior and next jobs are given by the subject on the Job Cut-Off Form (JCO), Q.'s 1-4. (If there is not a JCO Form for the job, the scorer can turn to the DOT, Vol. I or the Occupational Outlook Handbook for a description of the jobs, and to the DOT, Vol. II for the relationships between jobs (upgrading); in the case of military positions, the scorer may turn to the occupational handbooks available for the particular branch of the service involved.)

In addition, note subject's answers to JCO, Q. 12, and JMF, Q. 19, for his prior job, and JMF, Q.'s 7,8,11, and 12 for the next job. For moves involving training positions, check subject's answers to TF, Q.'s 3,6,11,13,14, and 20. For moves during 9-15 period, check WTQ, Q.'s 20,28, and 35 for present training, and Q.'s 40,45,54, and 55 for past training. For 9-15 job moves, see questions comparable to 9-19 job form questions.

In scoring, bear in mind that if subject has experience from earlier jobs (i.e., not immediately prior), that is utilized in job to which move is being made, he may earn credit. For example:

Job 1	Job 2	Job 3	Job 4
Carpenter	Construction Laborer	Delivery Man	Carpenter

In the above example, the move from Job 3 to 4 would draw on experience gained on Job 1, and would receive score of +1.

In this element, "skilled" refers to "skilled or higher", meaning all jobs that require substantial amounts of previous or on-the-job training, either formal or apprentice. For example, dental technician, surgeon, carpenter, bank teller, lawyer. "Semi-skilled" are those jobs which require only familiarization with routine or brief on-the-job training, e.g., waiter, truck driver. "Unskilled" jobs are typical entry jobs, e.g., construction worker, farm hand, hospital attendant.

Training to Training:

Move from training to advanced training in the same area, e.g., pre-med. to medical school, or from two-year liberal arts program into B.A. program, or from high school to college.	Score +1
Move from training to advanced training in different field, or same level, change in major, where no credits are lost, e.g., from English lit. to Masters program in psychology (no demerits because one could not get into M.A. program without B.A., and one can complete M.A. in same length of time as if one had been undergraduate psychology major).	Score 0
Move from training to training with loss of credits, e.g., from B.A. in English lit to pre-med.	Score -1

Job to Job:

Skilled to higher related skilled: Score +1

Examples: Policeman to police sergeant
Practical nurse to registered nurse
Lab assistant to lab technician
Bank teller to accountant

Skilled to related skilled, same level: Score 0

Examples: Salesclerk to cashier

Skilled to unrelated, skilled or unskilled, or semi-skilled: Score -1

Examples: Carpenter to farmer
Cook to practical nurse
Mechanic to hospital aide

Semi-skilled to skilled or higher related semi-skilled: Score +1

Examples: Tree trimmer (utilities) to telephone lineman
Lineman to electrician

Semi-skilled to related semi-skilled, same level: Score 0

Examples: Crane operator to bulldozer operator
Taxidriver to truckdriver
Glueing on handles to glueing on linings (pocketbooks)

Semi-skilled to unrelated semi-skilled or unskilled: Score -1

Example: Multigraph operator to stock clerk

Unskilled to higher related: Score +1

Example: Farm laborer to farm tenant

Unskilled to unskilled or unrelated semi-skilled: Score 0

Examples: Hospital aide to construction worker
Laborer to stock clerk

Training to Job:

Training to usage in job: Score +1

Examples: Law student to law clerk
Biology major to teaching biology

Training to unrelated skilled job: Score 0

Examples: Liberal Arts student (BA) to executive training program in bank, private company, etc.
Less than a year's training, unused

Training to unrelated, semi- or unskilled job: Score -1

Example: Associate Arts degree to stock clerk

Job to Training:

Skilled job to related, advanced training: Score +1

Examples: Bookkeeper to accounting course, or to business admin.
Elem. or high school teacher to MA program, in educ.
Auto mechanic to engineering course

Skilled to unrelated training: Score -1
Examples: Auto mechanic to Liberal Arts course
Bookkeeper to Liberal Arts course
Physical education teacher to business admin.

Semi-skilled to related, advanced training: Score +1
Examples: File clerk to business course (typing, bookkeeping)
Auto assembly workers to auto mechanics training

Unskilled to training: Score +1
Example: Farm hand to any training

Semi-skilled (involving clear accrual of some skills, e.g., baker, butcher - but not runner or usher or bellhop) to unrelated training: Score -1
Example: Baker to auto mechanics training

Semi-skilled with little to lose are scored like unskilled to training: Score +1

SCORING MANUAL FOR SCALE II OF CAREER DEVELOPMENT SCALES

II. Realism of Subject's Reasons for Move

In line with the Internal Criteria of the Career Behaviors, Super (1963), the subject's perception of his abilities and interests and needs, just as his own set of values, is the point of reference used in scoring the first 5 elements in this scale.

The criterion of realism for the first 5 elements in this scale is that the reasons the subject gives for making the move are in fact remedied or satisfied by the move. The remaining 3 elements involve the constant reality aspects of forced, automatic, or self-determined job-leaving.

In general, do not give credit for any one reason for moving in more than 1 element of Scale II, e.g., dissatisfaction with inability to use talent on prior job is credited only in the "Talent" Element, #3.

Moves that are clearly steps of progression within one company or one training program are credited with the reasons for the initial move into that company or program. For example, a subject enters a G.E. training program and advances through several different positions. Each of these carries over credit for entering the program, such as interest in electronics, desire to be a white collar worker, etc. Or, if a student changes schools for "way of life" reasons, but continues in original program (major field) he is given credit when he changes schools for reasons he gave for selecting program.

For every move involving job-leaving, examine subject's answers to 9-19 JCO, Q. 14 and 16 and 11; 9-15 W&TQ, Q. D4,D11,D16 and comparable questions for each job form.

For every move involving job-taking, examine answers to 9-19 JCO, Q. 8 and 9; JMF, Q. 4,5A, and 12 for next job. 9-15 W&TQ, Q. D3,D4,D8,D11,D13 for prior job and Q. 74,78,82,88, and 89 for present job.

For every move involving taking training, examine 9-19 TF, Q. 6,10,12,13, and 16. 9-15 W&TQ, Q. 20,28,33,34, and 35.

(1) Advancement in this context is a move which the subject perceives as a "step-up" from his previous position - or a training move which leads to - to one of increased prestige, salary, responsibility, security, benefits or private criteria of advancement not scored elsewhere in Scale II.

Job Move: Score 0 or +1

Examples: Subject answers as follows:

JCO, Q. 12: Was there any connection between this job and your next job?

✓ No.

____Yes. Please explain.

Score +1

JMF, Q. 12 - for next job: Comparing this job to the one you had immediately before it, was it

✓ a step-up; why? "More prestige."

Example:
JCO, Q. 12: Was there any connection between this job and your next job?
____No.
Score +1 ✓ Yes. Please explain: "I was promoted."

Training Move: Score 0 or +1
Example:
TF, Q. 12: Why did you take this training? "To get ahead in field" (or) "To get an MA (aready had BA)."
Score +1

(2) Way of Life: Score +1 or 0

Any reason given is credited without value judgement on part of scorer, if the move remedies or satisfied the subject's concerns. Reasons may pertain to the physical conditions or social relationships imposed on the subject by the job; or use of a job to implement plans, e.g., took job for money to finance schooling or for chance to learn new skills (when this is not viewed as advancement by subject).

Job Move:
Example: Subject says he left a job because he got tired of driving his wife to Middletown so took job closer to her folks; or he didn't like being indoors all the time; or the boilerroom was too hot, so he got a job in a garage.
Score +1

Training Move: NOTE: Only applies when subject is changing schools.
Example: Subject wanted to move to a school more in line with his desires, e.g., a more friendly, or more reputable, or more conveniently located school.
Score +1

(3) Better Use of Talents: Score +1 or 0

These are only self-perceived abilities, including such traits as "salesmanship".

Job Move:
Example: Subject checked on JCO, Q. 14 that he left previous job because his abilities were better than those required for job; and lists on JMF, Q. 4 or 5 his abilities or talents as factors he considered when taking next job.
Score +1

Training Move:
Example: Subject gives on TF in response to either or to all questions 11,12,13, that he took the training, and/or chose his major because of his specific ability or talent in the area.
Score +1

(4) Better Use of Interests:

Score +1 or 0

These are not measured interests, but self-perceived interests.

Job Move:

Example: Subject checks in answer to JCO, Q. 14 for prior job "My interests changed" or "I could not find an outlet for my interests"; and for next job, he lists interests as things he thought about when choosing job in answer to either Q. 4 or 5 on JMF.

Score +1

Training Move:

Example: Subject gives in answer to TF, Q. 13,14, and/or 15 that he found previous major unsuited to interests (interviewers were specifically instructed to tap change of major). Subject then responds to Q. 12 and/or 13 on TF for next training that he took training or chose major because of interest in specific subject (not just "interest" in getting a college degree).

Score +1

(5) Dissatisfactions:

Score +1 or 0

Do not score money, advancement, talents, interest or way of life reason here. Dissatisfactions pertaining to factors specific to the 2 jobs involved (factors such as the work load required by a particular school, or the odious nature of the tasks performed on a job), and dissatisfaction with lack of security remedied with next job are credited here. Not to be included here are physical working conditions, patterns of living, etc. evolving from the job. (The latter are subsumed under #2, Way of Life.)

Job Move:

Example: JCO, Q. 14 for previous job: Were you generally satisfied with this job?

Yes.
[✓ No.] Why not?
My interests changed.
[✓ There was too much supervision, not enough freedom.]

Score +1

JMF, Q. 5a for next job: What things about the job did you think about when choosing it?

"I could be my own boss most of the time."

Training Move:

Examples: TF, Q. 18 for training left: have you completed this training?

Yes.
[✓ No.] If no, give reasons for leaving the school or not completing training: "I didn't like having to study that hard - no chance for any social life."

Score +1

TF, Q. 13, for training taken next: What experiences helped you choose your major or speciality...? "I found out in engineering that I didn't want to work that hard, so I talked to people in education and decided it was for me."

Score +1

Score +1 or 0

(6) Automatic Termination:
Note: Military termination not automatic since subject has option to re-enlist. But if subject is in another job and is drafted, it is automatic termination.

Job Move: A score of +1 is given when job termination is a function of factors which subject cannot be expected to foresee or which are built into his occupation.

Example: Subject lists as reasons he left job that the plant closed, or that the production was cut down and he was laid off, or that his job was replaced with a machine.

Score +1

Training Move:
Example: Subject gives in answer to TF, Q. 18 that he left because he graduated.

Score +1

Score -1 or 0

(7) Forced Termination:
This element is always given a score of -1, because it is felt that even if the subject is fired for lacking necessary ability, this lack is a factor which he should have realized in time to take action himself, rather than waiting for action to be forced upon him from without.

Job Move:
Example: Subject checks on JCO, Q. 16 that he left because he was fired.

Training Move:
Example: Subject replies that he did not finish training (TF, Q. 18) because he was expelled or failed. The reports from the institutions which subject attended should be checked as well.

(8) Knew What Next Position Would Be Before Leaving:

Job Move:		Score
Examples:	Subject had next job lined up before making move:	+1
	Subject was released from military service and remained unemployed for a month or less:	0
	Subject was laid off without advance (2 weeks) notice:	0
	Subject quit job with no plan, was unemployed subsequently:	-1

Training Move:		Score
Examples:	Subject knew what major, school or job he was going to before leaving:	+1
	Subject leaves school in June and takes "summer job" and then enters college in September and he does not indicate the date he applied for the Fall term, assume knowledge of next position:	+1
	Subject's plans are altered by unforeseen events, e.g., disabling accident prevents entry into military, and subject is not unemployed (for more than 6 months) credit with knowledge:	+1
	Subject left school without knowledge of next position:	-1

SCORING MANUAL FOR SCALE IIIA OF CAREER DEVELOPMENT SCALES

IIIA. Goodness of Fit of Job to Abilities

Record the subject's percentile scores on the following:
Bennett Mechanical Comprehension Tests
Differential Aptitude Tests: Numerical and Verbal Reasoning
Meier Art Judgement Test
Minnesota Clerical Test: Names and Numbers
Otis Self-Administering Test of Mental Ability
Revision of the Minnesota Paper Form Board
Seashore Measures of Musical Talents.

Determine the level corresponding to each percentile score as follows:
For intelligence, verbal, numerical, spatial, and clerical aptitudes, use scale adapted from Estimates of Worker Trait Requirements for 4,000 Jobs[1] (EWTR):
Level 1 - 90 to 99 percentile
2 - 66.7 to 89.9
3 - 33.4 to 66.65
4 - 11 to 33.3
5 - 1 to 10.

---

[1] U.S. Department of Labor, Estimates of worker trait requirements for 4,000 jobs. Washington: U.S. Government Printing Office, 1956.

For remaining aptitudes, use levels provided by the Revised Minnesota Occupational Rating Scales[2] (MORS):
For mechanical ability:
Level A - top decile
B - 76 to 90 percentile
C - 26 to 75
D - 1 to 25.
For musical and artistic ability:
Level A - 97 to 100 percentile
B - 91 to 96
C - 26 to 90
D - 1 to 25.

---

[2] D.G. Paterson, C. d'A. Gerken, and M.E. Hahn. Revised Minnesota occupational rating scales. Minnesota Studies in Student Personnel Work, No. 2. Minneapolis: Univer. of Minnesota Press, 1953.

Locate a job comparable to subject's job, or to the one for which he is training, in the EWTR and in the MORS. (Volume 1 of the Dictionary of Occupational Titles[3] provides descriptions of job duties which can be checked against those described by the subject when finding a perfect match is difficult.)

---

[3] United States Employment Service. Dictionary of occupational titles. Washington: U.S. Government Printing Office, 1949.

Record on scoring sheet the levels listed for subject's job or training-objective.

Compute the differences between each of subject's scores and those listed, in terms of plus or minus discrepancies. If subject's scores on mechanical, musical, artistic, or clerical tests are level "C" or "4", whereas his job requires no degree of these aptitudes ("D" or "5") the discrepancy is felt to be negligible and is not to be counted in his score. Square each discrepancy, and sum the squares. This last figure - the sum of the squared discrepancies for 8 aptitudes - is the subject's "discrepancy score" for the position.

To compute a subject's "progress score", you must repeat the procedure for the subject's next position. His progress score for the move is then the difference between his discrepancy score on the prior position and his discrepancy score on the position to which he moved.

A perfect discrepancy score for this scale is zero, showing no difference between subject's abilities and those required for average performance in the job. Moving toward a lower discrepancy score, therefore, means moving toward a better fit, and is given a higher progress score than is moving to a more discrepant position. For example:

	1st Position	2nd Position	3rd Position
Discrepancy:	7	5	7
Progress Score:		+2	-2

Special Cases

Missing data. If more than 2 aptitude scores are missing for a subject, do not attempt to score him on Scale IIIA. If 1 or 2 aptitude measures are missing for a subject, use filler scores.

Return to high school. Compare aptitude scores of subjects who return to high school with no specific occupational goals in mind to, low average ability levels (25th percentile).

Terminal unemployment. Compare aptitude scores of subjects who are unemployed at time of data collection, to lowest ability levels ("5" and "D").

SCORING MANUAL FOR SCALE IIIB OF CAREER DEVELOPMENT SCALES

IIIB. Goodness of Fit of Measured Interest and Subject's Occupation

1. Select the group on the Strong Vocational Interest Test profile sheet into which the subject's occupation fits.

2. Determine the median of the subject's standard scores in this group. (If the median score should end in a decimal of .5, the score is raised or lowered to the nearest even number.)

3. Compare this median to the scores which correspond to letter grades (there is a key for this on top of each Strong profile sheet) as follows:

Score	Letter
45 up	A
40-44	B+
35-39	B
34 and below	B-,C+,C

4. If the subject's median score falls within the range of scores corresponding to an "A", there is no discrepancy between his measured interests and his actual occupation, so he is given a "0" Discrepancy Score on Scale IIIB for the position in question. And so on for the other scores as follows:

Subject's Median Score Corresponds to		Discrepancy Score for Scale IIIB
A	=	0
B+	=	1
B	=	2
B-,C+,C	=	3

SCORING MANUAL FOR SCALE IV OF CAREER DEVELOPMENT SCALES

IV. Relation to Goal - Subject's position is rated for its relation to his goal as expressed at the 9-19 contact.*

	Score	Examples (Case #001)
Exact position	0	Prod. manager, chemistry firm
In specific, highly advanced, related training, or in direct line for specific position	-1	Lab assistant in prod. dept., getting free advanced training in chemistry
In specific occupational area	-2	Lab technician in pharmaceutical firm
In related training or general occupational area	-3	Biology student
Left field	-4	Stock clerk; carpenter's helper

Military Service

If, upon entry into service (E-1), the subject is assured of his choice of field, score this first position as that field. If subject has no choice or does not know his field, score E-1 as -4 (unless, of course, military training, e.g., basic training, bears some relation to his goal).

---

[*] For goal, see Career Form P, Questions 4a and b, 6a and b, 13, and 9-19 interview. When subject does not state a specific field, occupation, or position, consult Career Form E, Q. 8, and score his positions as they relate to these work values.

SCORING MANUAL FOR SCALE VA OF CAREER DEVELOPMENT SCALES

The Hamburger Revision of the Warner Occupational Scale is used for all ratings.[4]

Discrepancy Scores

The socioeconomic status of a subject's first job and his last job are compared to the socioeconomic status of his father, and, if he is married, to that of his father-in-law.

Training positions are not given socioeconomic ratings, because the subject has not actually attained the level while still in school, and might fail the course or change his mind.

If a subject's first position is one in training, the "initial discrepancy" is based on his first job, and, in the same manner, "final discrepancy" is based on the subject's last-held job, if later positions are training ones.

Progress Scores

The progress score is the difference between the last socioeconomic level held by the subject and the level of the position to which the move is made, disregarding any training moves which may have intervened.

A move into a training position from a job is given a zero progress score on this scale.

Military Ratings

Positions in military service are assigned levels on the basis of pay grades, as follows:

Level 1 - Pay grade 0-5 and above (e.g., Lt. Col. and above)
2 - Pay grade 0-3 and 0-4 (e.g., Capt., Major, or equivalent)
3 - Pay grades W-1 through 0-2 (e.g., Warrent Officers and 2nd and 1st Lts.)
4 - Pay grades E-7 through E-9 (e.g., Master Sgt. and above)
5 - Pay grades E-4 through E-6 (e.g., Airman 1st Class, Staff Sgt. and after 7/1/58 all Corporals)
6 - Pay grades E-1 through E-3 (e.g., Private 1st Class, Airman 2nd Class, Seaman, and below).

Unemployment Ratings

Subjects who are unemployed at time of data collection are given a rating of "7", the lowest level given in Hamburger's Scale.

---

[4] Hamburger, M. Realism and consistency in early adolescent aspirations and expectations. Unpublished doctoral dissertation, Teachers College, Columbia Univer., 1958.

SCORING MANUAL FOR SCALE VB OF CAREER DEVELOPMENT SCALES

The scale used for all ratings is a revision of the Heyde Educational Level Scale.[5]

---

[5] LoCascio, R. A study of vocational preference implementation. Unpublished doctoral dissertation, Teachers College, Columbia Univer., 1965.

Discrepancy Scores

The subject's initial (high school leaving) educational level and his final level (at time of data collection) are compared to the highest educational level of his father, and, if he is married, to that of his father-in-law.

Progress Scores

A subject is given a + score for the move immediately following completion of the education which raises the level; that is, at the time when the subject graduates from a junior or four-year college and moves either to graduate school, military service, or a job. Intervening job moves are given zero progress scores.

SCORING MANUAL FOR CAREER STATISTIC: CAREER MOVES

The following statement defines the moves which are to be used in the judging of career behaviors and the scoring of career development scales. All positions taken after leaving high school are to be considered, even if prior to normal graduation date.

Civilian Life

A move is a change from one work or training position to another; a position is here interpreted as a full-time undertaking, or any activity which is the primary one at the time. If subject holds 2 positions, the full-time position is primary; if subject holds 2 part-time positions, the one subject considers primary is the one to be counted.

If a subject is in the process of going to college with the intention of getting a degree (i.e., a full-time, matriculated student) and takes a full-time job during the summer months while planning to resume studying in the Fall, that summer job is not interpreted as his major undertaking and the change to and from the summer job is not counted as a move. If, however, the subject has graduated from college or been forced or decides to abandon further college work, the job he then takes becomes his new undertaking and is counted as a move, even if he takes and holds the job only during the summer. Likewise part-time undertakings, if the subject's only activity, and he does not plan return to school, are moves.

A change in the duties of a subject that occurs merely as a result of temporary conditions within the employing company and over which the employee has no control or choice is not considered a move. For example, a bench worker in a factory is temporarily put on floor-sweeping detail because of a cut-back in production, but is later reassigned to bench work.

A move into unemployment is not, by definition, a move from one job or training position to another. Such a situation is taken into account when judging and scoring the move from the last job or training position held before unemployment to the next job or training position. (If intermittent periods of unemployment were treated as moves, scores for the moves out of unemployment would be spuriously inflated - appearing to reflect exceptional progress in terms of pay rate, experience, realism of reasons, etc. - since unemployment represents a base level.) However, unemployment or disability will be treated as a position to which a move was made if it is the last present position of the subject at the cut-off date.

A promotion involving duties or responsibilities different from those of the subject's previous position is a move.

A change of training major, e.g., engineering to law, is a move, as is a change of schools.

Return to high school after normal graduation date is a move, since subject has choice of going to school or to work.

Military Life

Re-enlistment with or without request for a different career field is a move.

A change from one assignment to another is not a move unless the subject has a choice in assignments; reassignment without choice or change in rank is comparable to a flow-of-work move in civilian life.

Promotion to a higher rank is a move, since promotion involves change in responsibilities and/or duties, and pay. Note: Promotion within service for non-career subjects is not tapped in depth in interview nor in any forms but Military Form; therefore, all promotion moves will be judged advancement automatically, a procedure which may give a false impression of early advancement later abandoned for those subjects who do not intend to make a career of military service. Such moves will therefore be labeled "military advancement".

SCORING MANUAL FOR CAREER STATISTIC: NUMBER OF TIMES AND MONTHS OF UNEMPLOYMENT

Record both number of times and number of months unemployed.

Unemployment is defined as 30 days or more of inactivity, excluding periods of illness or disability.

Students who neither work nor take courses during the summer months are considered unemployed.

SCORING MANUAL FOR CAREER STATISTIC: SELF-SUPPORT

A subject is considered self-supporting as long as the earnings from his full-time *and* part-time jobs fall within the range defined by the U.S. Department of Labor as a "modest but adequate budget" for his size family. These budgets are available on p. 18 of *Poverty and Deprivation in the U.S.*[6]

Money earned by subject's wife or received from his parents or from a loan is *not* counted toward his "self-supportingness".

Periods of unemployment are *not* necessarily periods of non-support: the total income for 9 months, for example, may be an adequate yearly income. Work on the basis of 82 months, from June 15, 1955 through April 15, 1962 for original ninth grade sample; and from June 15, 1956 through April 15, 1963 for original eighth grade sample.

For high school dropouts, who entered the labor market before the normal graduation date, prorate the number to the base of 82 months.

For subjects in military service, consult "Scoring Manual for Military Moves".

Students

If a student is attending school on scholarships or assistantships, it is assumed that he has earned such awards by virtue of his scholastic achievement or other outstanding qualities, and he is considered "self-supporting" during the period covered by the scholarships.

Information for scoring students is obtained from subject's responses to Q. 19 on the Training Form and/or from his interview. If the answer to the question indicates that the subject has used his own savings from previous job earnings in addition to gifts from his family or wife, he is termed self-supporting for *half* of the number of months he has spent in that training, e.g., 5 months self-supporting, 4 months not (giving the benefit of the uneven number 9 to the subject).

Unmarried student is assumed adequate if he contributes to his own support, e.g., summer jobs and part-time work during the school year. If unmarried student states that parents contributed half toward his support, count school year as 5 months adequate, 4 inadequate, and summer as adequate if he worked then.

Married students must meet minimum requirements of "modest but adequate budget".

---

[6] Conference on Economic Progress, *Poverty and deprivation in the United States*. Washington: Author, 1962.

SCORING MANUAL FOR MILITARY MOVES: CAREER DEVELOPMENT SCALES I, II, AND IV AND SELF-SUPPORT

Definition of move: Entry into the service (enlistment and/or draft call) and discharge are both moves. Re-enlistment is a move. Every promotion involves change in salary, responsibilities, and usually change in duties. A switching from one assignment to another is not a move unless subject requests it.

Labeling Moves: Label total scores for entry into service - MC if enlistment, M if drafted. Military advancement (promotion within service) is simply labeled M, unless subject exercises choice in assignment (then MC, for Military Choice).

Scale I

Pay Rate: Consult pages 728-9 of the 1963 Almanac, or individual branch handbooks for pay rate. Do not include quarters or food allowance; these are considered under Benefits.

Military advancement means +1 in pay rate.

Benefits: Entry into the service, score +1 (unless prior position provided room and board and medical insurance).
Moves within the service, score 0 (no change).
Moves out of service and into another position, score -1 (if no comparable benefits gained),0 (if comparable benefits), and +1 only if there is a proportionate increase in benefits.

Experience: Score +1 when subject has reached some skilled level in a specialized field, e.g., Seaman (E-3) to Machinist Mate (E-4), usually at E-3 for Army and Air Force, and E-4 for Navy (and then only if E-2 and E-3 form some logical sequence of training and/or use of skills). Further advancement gets +1 only when move represents further increase in skills, or move into advanced training.

If subject enlists and is assured of his choice of field, credit initial move into service with score appropriate to his past experience.

Scale II

Advancement: Military promotions or advancement get automatic +1.

Way of Life: +1, for wanting to get service obligation over with, if subject states this.

Automatic Termination: Draftees get +1, on move into service. (Military termination is not automatic, since subject has option to re-enlist.)

Scale II (cont.)

Knowledge of next move: +1 for draftees, enlistees, and those advancing within service.

Subjects released from military service with less than one month's subsequent unemployment, score 0.

Other: Subject may get credit under Way of Life, Interests, Abilities, Dissatisfaction, etc., for military moves, when appropriate, and when there is choice involved.

Scale IV: If upon entry into the service (into E-1) the subject is assured of his choice of field, score this first position as that field, in relation to his goal. If subject has no choice or does not know his field, score E-1 as -4 discrepancy (unless, of course, military training, e.g., basic training, bears some relation to his goal).

Self-Support: Consult 1963 Almanac, pages 728-9, or individual branch handbooks for pay rate, quarters, and subsistence allowance. As with straight occupational subjects, compare total yearly income with Adequate-Inadequate figures for appropriate family size. Consider service period adequate for single man.

REFERENCES

Bell, A.P. Role models: their relationship to educational and occupational behaviors. Unpublished doctoral dissertation, Teachers Coll., Columbia Univer., 1967.

Bothwell, J.L. Self-concept metadimensions and occupational behavior in young adulthood: a content analysis of longitudinal data. Unpublished doctoral dissertation, Teachers Coll., Columbia Univer., 1967.

Brochard, J.H., Beilin, H., & Thompson, A.S. An occupational handbook for Middletown. Middletown, New York: Board of Education, Chamber of Commerce, & Community College, 1954.

Brogden, H.E. & Taylor, E.K. The dollar criterion--applying the cost accounting concept for criterion construction. Personnel Psychol., 1950, 3, 133-154.

Buehler, Charlotte. Der menchliche Lebenslauf als psychologisches Problem. Leipzig: Hirzel, 1933.

Chatel, Louise. The effect of being in a longitudinal study of career development on certain aspects of early vocational behavior. Unpublished doctoral dissertation, Teachers Coll., Columbia Univer., 1964.

Conference on Economic Progress. Poverty and deprivation in the United States. Washington: Author, 1962.

Crites, J.O. Measurement of vocational maturity in adolescence: I. Attitude test of the vocational development inventory. Psychol. Monographs: General and Applied, 1965, 79 (2, Whole No. 595).

Davidson, P.E. & Anderson, H.D. Occupational mobility in an American community. Stanford, Calif.: Stanford Univer. Press, 1937.

Davies, J.G.W. What is occupational success? Occ. Psychol., 1950, 24, 7-17.

Davis, J.A. Returns sought from adult work by early adolescents, in relation to sociometric status among peers. Unpublished doctoral dissertation, Teachers Coll., Columbia Univer., 1956.

Earle, F.M. Psychology and the choice of a career. London: Methuen, 1933.

Flanagan, J.C. Project TALENT: the first national census of aptitudes and abilities. Yearb. Nat. Council Msmt. Used Educ., 1960, 17, 37-44.

Flanagan, J.C. & Cooley, W.W. Project TALENT: one year follow-up studies. Pittsburgh, Penna.: Univer. of Pittsburgh, 1966.

Ghiselli, E.E. & Haire, M. The validation of selection tests in the light of the dynamic character of criteria. Personnel Psychol., 1960, 13, 225-231.

Gotkin, Elizabeth H. The measurement of career behaviors of young men. Unpublished doctoral dissertation, Teachers Coll., Columbia Univer., in process.

Gribbons, W.D. & Lohnes, P.R. Predicting five years of development in adolescents from readiness for vocational planning scales. *J. educ. Psychol.*, 1965, 56, 244-253.

Gribbons, W.D. & Lohnes, P.R. *Career development*. Cooperative Research Project No. 5-0088, Regis Coll., Weston, Mass., in press.

Hamburger, M. Realism and consistency in early adolescent aspirations and expectations. Unpublished doctoral dissertation, Teachers Coll., Columbia Univer., 1958.

Hansen, H. (Ed.) *The world almanac*. New York: New York World-Telegram, 1963.

Henderson, H. The relationship between interests of fathers and sons and sons' identification with fathers. Unpublished doctoral dissertation, Teachers Coll., Columbia Univer., 1958.

Herzberg, F.I., Mausner, B., & Snydeman, Barbara B. *The motivation to work*. New York: Wiley, 1959 (2nd Ed.).

Heyde, Martha B. Certain factors related to parental vocational and educational aspirations for boys. Unpublished doctoral dissertation, Teachers Coll., Columbia Univer., 1959.

Heyde, Martha B. & Jordaan, J.P. *The high school years*. New York: Bureau of Publications, Teachers Coll., Columbia Univer., in process.

Hummel, R.C. Responsiveness as a function of interviewer method. Unpublished doctoral dissertation, Teachers Coll., Columbia Univer., 1958.

LoCascio, R. A study of vocational preference implementation. Unpublished doctoral dissertation, Teachers Coll., Columbia Univer., 1965.

LoCascio, R. & Super, D.E. Long-term follow-up methods and results. Paper presented at American Personnel & Guidance Association Convention, Washington, D.C., April, 1966.

Marr, Evelyn. A study of some behaviors and attitudes relating to occupational choice. Unpublished doctoral dissertation, Teachers Coll., Columbia Univer., 1964.

Mehenti, P.M. Agreement between vocational preference and inventoried interest in relation to some presumed indices of vocational maturity. Unpublished doctoral dissertation, Teachers Coll., Columbia Univer., 1954.

Miller, D.C. & Form, W. H. *Industrial sociology*. New York: Harper, 1951.

Nicholas, C. Parent-son participation in vocational planning. Unpublished doctoral dissertation, Teachers Coll., Columbia Univer., 1958.

Overstreet, Phoebe L. Factors associated with the quality of self-evaluations. Unpublished doctoral dissertation, Teachers Coll., Columbia Univer., 1959.

Paterson, D.G. & Darley, J.G. *Men, women, and jobs*. Minneapolis: University of Minnesota Press, 1936.

Paterson, D.G., Gerken, C. d'A, & Hahn, M.E. Revised Minnesota Occupational Rating Scales. Minneapolis: Univer. of Minnesota Press, 1953.

Rothney, J.W.M. Guidance practices and results. New York: Harper 1958.

Rotter, J.B. & Rafferty, Janet E. Manual, the Rotter Incomplete Sentences Blank, College Form. New York: Psychological Corporation, 1950.

Schwebel, M. The interests of pharmacists. New York: Columbia Univer. Press, 1951.

Shartle, C.L. Occupational information. (1st Ed.) New York: Prentice-Hall, 1946, (3rd Ed.) 1959.

Stott, Mary B. What is occupational success? Occ. Psychol., 1950, 24, 105-112.

Strong, E.K., Jr. Vocational interests of men and women. Stanford, Calif.: Stanford Univer. Press, 1943.

Strong, E.K., Jr. Vocational interests 18 years after college. Minneapolis: Univer. of Minnesota Press, 1955.

Super, D.E. The dynamics of vocational adjustment. New York: Harper, 1942.

Super, D.E. Vocational adjustment: implementing a self-concept. Occupations, 1951, 30, 88-92.

Super, D.E. The dimensions and measurement of vocational maturity. Teachers College Record, 1955, 40, 11-15.

Super, D.E. Education and the nature of occupations and careers. Teachers College Record, 1957, 58, 301-309.

Super, D.E. The psychology of careers. New York: Harper, 1957.

Super, D.E. Some unresolved issues in vocational development research. Personnel Guid. J., 1961, 40, 11-15.

Super, D.E. The definition and measurement of early career behavior. Personnel Guid. J., 1963, 41, 775-779.

Super, D.E. & Crites, J.O. Appraising vocational fitness. New York: Harper & Row, 1962.

Super, D.E., Crites, J.O., Hummel, R.C., Moser, Helen P., Overstreet, Phoebe L., & Warnath, C.F. Vocational development: a framework for research. New York: Bureau of Publications, Teachers Coll., Columbia Univer., 1957.

Super, D.E. & Overstreet, Phoebe, L. The vocational maturity of ninth-grade boys. New York: Bureau of Publications, Teachers Coll., Columbia Univer., 1960.

Terman, L.M. & Oden, Melita H. The gifted child grows up. Stanford, Calif.: Stanford Univer. Press, 1947.

Thorndike, R.L. Personnel selection. New York: Wiley, 1949.

Thorndike, R.L. & Hagen, Elizabeth. 10,000 careers. New York: Wiley, 1959.

Tiffin, J. Merit rating systems. Personnel Psychol., 1958, 37, 288-291.

United States Department of Labor, Dictionary of occupational titles, Vols. I & II. Washington: Government Printing Office, 1949.

United States Department of Labor. Estimates of worker trait requirements for 4,000 jobs. Washington: Government Printing Office, 1956.

Vroom, V.H. Work and motivation. New York: Wiley, 1964.

Warnath, C.F. Social effectiveness as it relates to family cohesiveness and adolescent independence. Unpublished doctoral dissertation, Teachers Coll., Columbia Univer., 1954.

Warner, W.L., Meeker, Marchia, & Eells, K. Social class in America. Chicago: Science Research Associates, 1949.

Weiss, D.J., Dawis, R.V., England, G.W., & Lofquist, L.H. Validity of work histories obtained by interview. Minneapolis: Univer. of Minnesota Press, 1961.

Wilstach, Ilah M. Vocational maturity of Mexican-American youth. Unpublished doctoral dissertation, Univer. of Southern California, 1967.